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PATHOLOGICAL
 Inquiries and Observations
 IN
 SURGERY,
 FROM THE
 DISSECTIONS of MORBID BODIES.
 WITH AN
 APPENDIX
 CONTAINING
 Twelve CASES on different Subjects.

By RICHARD BROWNE CHESTON,
 SURGEON to the GLOUCESTER INFIRMARY.

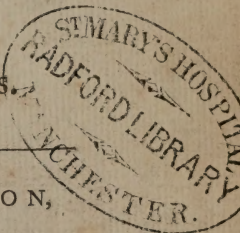
Ista autem recte fiunt, si quis morbos quoniam sint et ex quibus oriuntur cognoscat; et quoniam ex his longi, quoniam breves, et qui lethales, et qui minime lethales; qui in alios transeunt, qui increseunt, quoniam emarcescunt, qui magni, qui parvi, et inter curandum hos quidem curari posse, hos vero non posse, et nosse quamobrem non possint; et dum curantur, qui ita se habent, curatione quoad ejus fieri potest prodesse.

HIPPOCRATES *de Morbis*, lib. I. sect. 5.

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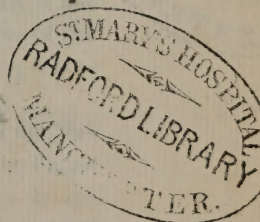
D E D I C A T I O N
M^R. W A T S O N,

Reader of Anatomy in London,

A N D

Surgeon to the Westminster Infirmary.

S I R,



THE unwearied Pains and Diligence with which you have applied Anatomical Inquiries to the Advancement of Chirurgical Knowledge, must make every well-meant Attempt to promote the same End agreeable to you. Thus encouraged, I take the Liberty to usher the following Observations into the World under the Patronage of your

D E D I C A T I O N.

Name, which, at the same Time that it be-
speaks the Favour of the Public, affords me
the pleasing Opportunity of acknowledging
the Esteem and Regard with which

I am,

S I R,

Your much obliged and

obedient humble Servant,

R. B. CHESTON.

INTRO.

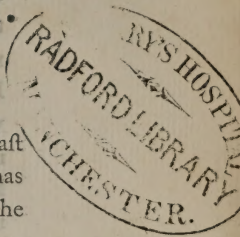
INTRODUCTION.

THE Advances which Anatomy has made this last Century, and the judicious Manner in which it has been applied to explain the Nature and Laws of the Animal Oeconomy, have been productive, upon many Occasions, of the most desirable Consequences.

THE very learned Lord *Verulam* * long ago urged the Necessity of extending the Use of Anatomy beyond the simple Investigation of the Structure of the Human Body: It appeared to him a Matter of Consequence, that the Variety of Appearances in different Bodies should be particularly taken Notice of, and the Alterations and Effects produced by Diseases be remarked with Care and Diligence.

SUCCESSING Ages approved his Maxims, and the Examination of morbid Bodies, as appearing most conducive to this Purpose, has been pursued with the greatest Industry and Success. Of this *Skenckius*, *Bonetus*, and of late *Morgagni*, afford the most ample Testimonies. Hence we have been made acquainted with the Cause of many Phenomena in Diseases, which were before deemed inexplicable; and upon several Occasions been so happy, if not to recover, at

* De Augment. Scient.



INTRODUCTION.

least to relieve, Patients, whose Cases would formerly have been supposed beyond the Reach of human Assistance.

BUT though the Advantages of these useful Inquiries manifest themselves in so remarkable a Manner, we frequently meet with Interruptions in such Pursuits: The Friends of the Deceased interpose, and from a superstitious Respect or mistaken Tendernefs, obstruct our Intentions. What a Loss this false Delicacy must have occasioned to an Art, where no Opportunity should be suffered to pass unnoticed, must be too obvious to every one; and is a sufficient Reason why we should embrace every Opportunity which the more sensible and discerning are ready to grant us.

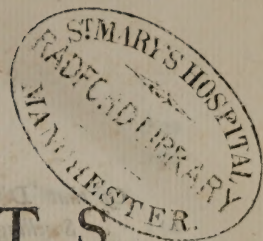
IN the Course of such Inquiries many Diseases will occur, which from their particular Nature, Situation, and Connections, must have been absolutely incurable; yet even from such we may reap Advantage, since by being made acquainted with the original Cause, we may collect sufficient Hints how to attack the Disease with more Propriety in an early State; and in an advanced one, though incurable, may be better enabled to form our Prognostic in a certain and satisfactory Manner.

SUCH Inquiries however must be pursued under proper Restrictions, and we should with Caution draw our Conclusions when we observe Parts in a morbid Condition, which we had no Reason to suspect to be diseased from the Symptoms or Complaints which arose during the Patient's Illness. Some may perhaps be produced in *Articulo Mortis*; and others may have been the Effect of a former Disease, which Nature or Strength of Constitution at that Time happily overcame. Hence we should endeavour minutely to acquaint ourselves
with

INTRODUCTION.

with the Rise and Progress, Effects and Symptoms, of the Disease during the Patient's Illness, that by considering them with the Consequences produced upon the Animal Oeconomy, we may fix the Nature of the Disease upon true and just Principles. An Inattention in this Respect has frequently confounded and mistaken Effects for Causes, and ascribed Appearances to Complaints they were no ways concerned or connected with.

FULLY persuaded of the great Usefulness of Anatomical Investigations in the morbid Body, I have taken every Opportunity which has offered for that Purpose, and for the same Reason have not scrupled to publish the following Observations, related with the strictest Regard to Truth. My sole Intention has been the Discharge of a Duty, which I think every Man owes to the Public and to his Profession, whereby he may contribute in the least either to the Benefit of the one or the Improvement of the other.



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* I have retained the Term White-Swelling, though in many Respects inexpressive of the Disease, as the Name it is best and most commonly known by. Our Knowledge of Diseases has been perhaps not a little embarrassed by that Fondness which even now too much prevails of imposing new Names on them.

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E R R A T A

- | Page | Line | |
|------|-------------------|---|
| 5 | 2 | for, the second and third Rib, <i>read</i> , second and third of the true Ribs. |
| 8 | 13 | for, conderably, <i>read</i> , considerably. |
| 25 | 7 | for, upon, <i>read</i> , in. |
| 26 | 8 | for, though for a short Time, <i>read</i> , though it had been for a short Time. |
| 32 | 13 | for, Marchelli, <i>read</i> , Marchetti. |
| 39 | 7 | <i>dele</i> , as. |
| 52 | 3 | for, subtilissimoram, <i>read</i> , subtilissimumum. |
| 64 | 27 | for, restrained, <i>read</i> , retained. |
| 77 | in the Note, | for, Inaugurel, <i>read</i> , Inaugural. |
| 89 | 4 | of the Notes, <i>read</i> , there are a great Number. |
| 95 | 5 | for, gelatinous, <i>read</i> glutinous. |
| 105 | 6 | after Hip <i>put</i> a Comma. |
| 116 | 4 | for, habit, <i>read</i> habet. |
| 116 | 27 | for, ex carni, <i>read</i> , excarni. |
| 117 | 8 | of the Note, <i>between</i> Fat and Membranes, <i>put</i> a Comma. |
| 123 | 22 | for, in the Scrobiculus, <i>read</i> , at the Scrobiculus. |
| 344 | second Reference, | see a remarkable Case in Pouteau's Melanges de Chirurgie, p. 135,---
Un jeune homme, |

P A T H O L O G I C A L

Inquiries and Observations.

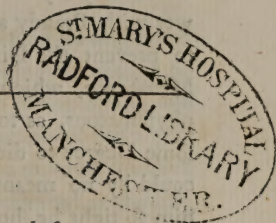
C H A P. I.

Fractured Ribs attended with an Emphysema.

ON Saturday December 29, 1764, I was called to a poor Fellow, who had just received a violent Contusion on his Side, as was supposed, from the End of a Shaft of a Waggon. He was then tormented with a constant Cough; and, after many ineffectual Efforts, brought up a frothy Discharge lightly tinged with Blood, seemed in the greatest Agonies, and under a constant Appearance and Danger of Suffocation. His Pulse beat very irregularly, and sometimes was scarcely to be felt; his Face appeared very livid, and when he was sensible, which was only now and then, he complained of a violent Pain in his Head. Upon examining the injured Part I found a considerable, and at that Time rather circumscribed, Tumour, about two Fingers' Breadth from the Spine, which, upon every Effort to cough, felt very tense, and afforded a Noise like the Collision

B

of



2 PATHOLOGICAL INQUIRIES.

of Air in a confined Place, to be heard by all who were about him. Upon opening a Vein by a large Orifice he bled freely to about five Ounces, which then stopping almost at once he fainted away, and his Pulse could with Difficulty be perceived.

CONCLUDING that his Lungs were wounded, and in all Probability by a fractured Rib, I attempted to pass a Roller wet with Brandy and Vinegar over the injured Part, as well to prevent the Discharge of Air into the external Cellular Membrane, which I then observed began to grow very emphysematous, as to confine the Motion of the Thorax, and in some Degree to diminish the Violence of his Pain. This he could by no means suffer, and cried out, that if we bound him so tight he should burst. I then made a strong Compression with my Hand only, which, by his Complaints, I found, affected him in a similar Manner.—Imagining the only Relief we could afford him, as he now was become highly emphysematous all over his Back and upon his Breast, would be to discharge the Air by Scarifications, I made one an Inch and a Half long, just above the injured Part, and another upon the Division between both Pectoral Muscles; I then began to stroke the Skin towards the Incisions, and found the Air discharge itself freely, with a puffing, hissing Noise: This we were obliged to continue doing for some considerable Time, as he still filled in a remarkable Degree, during each Fit of Coughing, which returning so very frequently scarcely afforded Time for an Intermission of our Labour.

As he complained of a most violent Pain in his Head, I bled him again, and after we had caught about Ten Ounces, it stopt as before, and he fainted. When he revived, he seemed
some-

somewhat relieved, and his Pulse beat more regularly. His Cough, however, continued still very troublesome; and tho' we could reduce the Swellings, during the Intervals of his Coughing, yet, whenever the Cough returned, he became as much swoln as before. In this Manner he passed the succeeding Night; and, as often as he filled, the Air was, by the tender Care and Diligence of his Fellow-servants, constantly discharged.

TOWARDS the Morning, the Pain in his Head seemed much more tolerable; and his Cough not returning so often, he swelled but little. In the Evening he began filling again; and as the first Incisions, by being somewhat inflamed, were now prevented from emitting the Air, I made some more on the Back as well as on the Pectoral Muscles, which answered as the former. The succeeding Night he passed pretty easily; his Breathing was not quite so troublesome, and he got some Sleep. The Noise as well as Tumour on the injured Part was much less perceptible; and he took, what was offered him, readily, and with Ease.

On the second Morning, he complained of a most violent Pain in his Neck and Throat: I imagined it might proceed from an incipient Inflammation of the Pleura, and therefore took away Twelve Ounces more of Blood, which appeared very florid, and of a much thinner Consistence than at first. He had all along taken freely of a pectoral Emulsion, and the laxative Medicines ordered for him answered to our Wishes. The Pain in his Neck, however, still continued with equal Violence, and he became particularly restless. He sweated considerably, yet complained of being excessively cold. The Cough became as troublesome as ever; and the Noise, as well

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as Tumour at the injured Part, returned to the same State as at first. The Scarifications now answered but for a little Time, and reduced me to the Necessity of repeating them often, to conquer the Swellings, which otherwise gained Ground upon us considerably. His Case now appeared desperate. I expected every Moment he would be suffocated. His Pulse became very quick; but, tho' he now and then seemed expiring, it still retained near the same Degree of Strength.

BEING obliged to leave him about Ten o'Clock, I concluded he could not possibly survive that Night; but, to my great Surprise the next Morning, I found him, as the Attendants supposed, much better in every respect, and lying upon the Bed.

BUT observing, upon Examination, his Pulse much more languid and small, that he sweated profusely, and that his Cough was seldom troublesome to him; I concluded this Appearance of Ease proceeded rather from a Degree of Insensibility, than from any Relief of his Complaints, and that he could not possibly live much longer. Returning, therefore, about Three Hours afterwards, I found him *in extremis*, sweating most profusely, at the same Time that his Hands and Feet were quite cold, his Pulse scarcely to be felt, and his Breathing very short and laborious.

THO' his Fits of Coughing were now returned again and become much more constant and violent than ever, he neither expectorated nor filled with Wind as before; when, all of a sudden, inclining his Head backwards, and opening his Mouth, as it were for the Admission of more Air than usual, his Breathing became much more difficult and interrupted, and he appeared insensible in every Respect. In this State he continued about a Quarter of an Hour, and then died.

UPON

UPON examining the Thorax after his Decease, we found the second and third Rib, reckoning from below upwards, fractured obliquely, so as to form very sharp Points, within Two Finger's Breadth of their Junction with the Vertebra; which, however, could not be felt when the Man was alive, as well from the Air particularly collected in the Cellular Membrane of that Part, as from a pappy Enlargement of the Sacrolumbalis and Longissimus Dorsi Muscles, under which the Fracture immediately lay. Through the Intercostals and Pleura was an Aperture, that would readily admit my Finger to pass into the Cavity of the Thorax, and in the Lungs appeared a Wound, which, by forcing the third Rib strongly down, exactly answered it both in Size and Situation. The Lungs above the Wound seemed of a natural Appearance, but below looked livid, and, upon being divided, rather more compact than usual. There did not appear the least Extravasation of Blood or Serum in the Cavity of the Thorax; nor could I observe the Pleura at all inflamed throughout its whole Extent. The Heart and Lungs in the opposite or Left Side continued in a very sound State; except that both Auricles and Ventricles were overcharged with Blood, and the Coronary Vessels appeared præternaturally full and turgid; but neither within the Cavity of the Thorax or Abdomen did there appear the least Emphysema, tho' the Cellular Membrane under the Integuments still felt crackly as when alive.

It has generally been supposed that, in those Instances where the Lungs have been wounded by a fractured Rib without any external Opening through the Integuments, the Death of the unhappy Sufferer is produced by the Entrance of the Air into the Cellular Membrane of the Lungs, which it renders emphysematous

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physematous in the same Manner as the Cellular Membrane of the external Parts. Hence Respiration becomes obstructed, and the Patient dies, as it were, Peripneumonic.

BUT that this is not always the Case, the present Instance affords an evident Proof; wherein, tho' the Termination was fatal, yet neither the Lungs, nor indeed any of the internal Parts, were in the least Emphysematous.

PHYSIOLOGISTS seem in general to agree, that Respiration, and a due Circulation of the Blood, are mutually and necessarily dependant on each other, and accordingly as the one is affected by a Disease, the other will suffer in Proportion. This, indeed, is evidently confirmed by the Situation and Connection of the Heart and Lungs, as well as by the Manner in which the Circulation is carried on through them both. The Blood being returned by the Venæ Cavæ to the Right Auricle, and from thence forced on to the Right Ventricle, is by the Contraction of the latter propelled still forward into the Pulmonary Artery, from whence the Circulation is continued through an infinite Number of small arterial Blood-vessels, that every where run along the membranous Cells or Air-vesicles of the Lungs, 'till entering into the venous System of the same Viscus, it is discharged into the Left Auricle, &c. to be afterwards distributed to every Part of the Body.

VARIOUS have been the Opinions of Anatomists upon the Design and Use of this vesicular Contrivance in the Lungs; of which, as they are in general foreign to our Purpose, we shall take no other Notice than by observing, that the Circulation will be most perfect, when the Vesicles are filled with Air; and that, on the contrary, if the Air should be prevented from distending these Vesicles, either by being refused Admittance through the Trachæa, or being almost immediately discharged

charged by any accidental Aperture, the Lungs will remain in a collapsed State, and the Blood Vessels, for Want of a proper Extension, be gathered together into an impervious Mass, which will unavoidably put a Stop to the Circulation in that Lobe or Part of the Lungs thus circumstanced.* The Blood, therefore, not passing off with the usual Freedom and Ease into and through the Pulmonary Vessels, will necessarily be so much accumulated in the right Auricle and Ventricle, and consequently meet with such a Remora in the Veins returning to the Heart, as to threaten the greatest and almost immediate Danger to the Patient's Life.

THAT this was the Case in the present Instance seems particularly confirmed by there being no Hemorrhage from those Vessels, which such a Wound must necessarily have lacerated and divided; since by their being rendered in a great Measure, if not totally, impervious by the Collapsion of the Air-vesicles, the Circulation through them, and consequently an Hemorrhage from them, was prevented.

In the Case related by *Monf. Mery*,† where the Lungs were found lacerated by a Splint from one of the fractured Ribs, neither Blood nor Serum were found extravasated, probably for the same Reason as abovementioned.; and, perhaps, why he had Recourse to such an extraordinary Conjecture as, that his Patient died from the Pressure of the Emphysema on the Outside of the Chest, might arise from his not observing any Appearance of extravasated Air, but in the external Cellular Membrane, which he might imagine counteracted the Motion of

* This is, perhaps, best illustrated by the Condition and State of the Lungs of a Fœtus in Utero.

† Acad. of Sciences, Ann. 1713.

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the Thorax, on which the Action of the Lungs was supposed in his Time, as it has been by many since, entirely dependant.

SEVERAL Experiments have sufficiently proved, how far, and in what Degree, the Lungs are affected and compressed by the Admission of Air externally through a Wound of the Thorax; and there is undoubtedly as great Reason to suppose, that the Lungs will suffer nearly as much, from the Air extravasated through a Wound inflicted on the Lungs, when the Integuments are not divided; more especially as the Air will certainly act with a greater Force, when rarified by the Heat of the Thorax.

THIS, in a great Measure, seems to have been the Case with our Patient, who was always observed to grow most emphysematous, and to suffer the greatest Anguish, when the Cough was most troublesome: For as the Lungs were considerably agitated, and, in a great Degree, put in Motion, by the Act of Coughing; the Air, by the repeated and quick Inspirations, must necessarily be discharged through the Aperture of the Lungs into that Cavity of the Thorax in a greater Quantity than when they were at Rest, and, as it were, in a State of Inaction. Hence, though the Lungs might otherwise be supposed useless in that Cavity, as not being sufficiently, if at all, dilated; yet the Pressure of the Air upon the Mediastinum must so far straighten the Capacity of the other Cavity of the Thorax, that the Lungs there would not have sufficient Room for their Dilatation, now become so necessary: Consequently the Danger of Suffocation must be greater, and more immediate, 'till by the Ceasing of the Cough, and the Passing of the Air into the external Cellular Membrane, the Air no longer acted in that injurious Manner.

C H A P.

C H A P. II.

Of Abscesses of the Kidnies from a Stone in the Bladder.

C. S. a Boy seven Years of Age, was admitted into our Hospital, labouring under the most certain Symptoms of a Stone in the Bladder. His Father reported, that from two Years of Age he voided his Urine with extreme Pain and Difficulty; and that, though he had frequently applied for Relief in that Part of the Country he came from, he had never been able to procure the Child any more than a temporary Mitigation of his Complaints.

His Pains were now so severe and excruciating, that he lost his Appetite and Flesh daily, and was becoming highly hectic. He complained of a great Pain in his Belly and Back near the Region of his Kidnies; and his Urine, which in general came away involuntarily, when any could be caught, appeared whitish, and let fall a purulent Sediment.

UPON searching him a Stone was readily found in the Bladder; yet the hectic State of his Habit, the purulent Urine, and extreme Weakness of Body, absolutely forbade Lithotomy, as they strongly signified his approaching Death; and which, after he had languished for two Days in a State of Insensibility, happened about the tenth Day after his Admission.

UPON examining the Abdomen, the Liver, Spleen, and Intestines appeared in good Condition; but the Substance of the Kidnies was so dissolved into Matter, that they appeared little more than Cysts full of Pus; the one weighing four Ounces, and the other three. The Ureters were nearly of a

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natural Size, but the Bladder was very much thickened and indurated, and contained a Stone, which weighed near nine Drachms, of a soft Texture, and whitish Colour, in every Respect resembling those Stones which are found in the Bladder, when any of the urinary Parts are in a purulent State.

J. S. thirteen Years of Age, applied to our Hospital for the Relief of some Complaints in his urinary Passages, which had been troublesome to him, with greater or less Severity, from his Birth. Under the strongest Suspicions of a Stone, he had formerly been several Times searched, but no Stone, or any other præternatural Body, could, at that Time, be found; and his Complaints, therefore, were supposed to proceed from some acrimonious Humours which had fallen upon the urinary Passages.

UPON questioning him carefully after his Admission, we found that he had at times been subject to almost every Symptom of a Stone, with a constant and excruciating Pain at the Neck of his Bladder, which very frequently darted along the Urethra, to the Extremity of the Glans; nor could he now ever procure any Ease, but when resting his Head on a Stool, he raised his Hips above the Level of his Trunk.

UPON introducing a Catheter to sound him, we met with a Stone, and pulling out the Stile, his Urine came away evidently mixed with a large quantity of Matter, which, with the Pain felt in his Loins, pointed out to us the purulent State of his Kidnies.

THE Boy hearing that he had a Stone in his Bladder, and concluding that he must necessarily undergo the Operation, that Evening ran away from the Hospital, and returned

to

to his Friends; where resisting all their Persuasions for his Return to the Hospital, he languished in the greatest Misery about two Months, and then died.

UPON inspecting the Abdomen, the Kidnies were found in a very purulent State, the Ureters considerably enlarged, and in some Places contracted, as though it were by a spasmodick Constriction; and in his Bladder a very hard, rough, and oval Stone of the Mulberry Kind, whose Extremities seemed lately to have received an Addition of calcarious Matter of a white Colour, and widely differing in Compactness from the middle Part of the Stone.

It is usual with Lithotomists, before they attempt the Extraction of a Stone from the Bladder, to endeavour, if possible, to ascertain the State of the abdominal Viscera in general, lest the Unsuccessfulness of the Operation should be attributed to the Surgeon, when it in fact proceeds from other causes. With this View the State of the Kidnies ought to be particularly attended to, both on Account of their Disposition to generate calculous Concretions, and as they are liable from a given Cause to inflame and suppurate.

THE Basis or Nucleus of most Stones in the Bladder have, in general, been thought to be a Concretion first formed in the Kidney, which having passed the Ureter into the Bladder, was either from its Size, or some other unfortunate Circumstance detained there; where attracting that addition of calcarious Matter, which every, even the most healthy Person's Urine abounds with, it at last arrives to a Size or Figure capable of causing the most excruciating Torture, and, if not timely extracted, frequently Death itself.

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WE frequently meet with Patients labouring under the Stone in the Bladder, who at the same Time discharge Gravel in a considerable Quantity; which, though an additional Proof of the great Disposition to generate such Concretions, and a melancholy Prospect to the Patient that he may again be liable to a Return of such Complaints, is not at all Times deemed a sufficient Reason to forbid an Operation, which at least will afford a temporary Relief.

BUT when, from the Lodgement of a Stone in the Kidnies, or the Irritation and violent Pain occasioned by one in the Bladder, an Abscess is formed in the Kidnies, we have then an additional Evil to cope with, whose bad Effects are much more certain and irremediable.

'Tis true the State of the Urine is generally a good Criterion of the State and Condition of the Kidnies, and most commonly, when an Abscess is formed there, it comes away in a very purulent State as in the foregoing Cases. Yet many, to their very great Surprise, when examining morbid Bodies, have found the Kidnies in a high State of Suppuration, without the least Appearance of Pus having ever been discharged with the Urine.

A robust Countryman, about fifty Years of Age, applied to an Apothecary for the Relief of an Uneasiness and Difficulty in making Water; who imagining it to proceed from an Acrimony in his Blood, gave such Medicines as he thought most proper. The poor Fellow, contented with the Relief he found by these Means, continued to follow his Employment as usual for near six Months, when the Pain returning at Times with some Degree of Violence, he took the
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the Opinion of a Surgeon, who, suspecting a Stone, searched him, but could not find one. His Complaints, however, which were now very severe, being such as generally attend a Stone in the Bladder, he was put under the usual Course of palliative Medicines. These availed but little; his Appetite began to fail, and he complained of great Pain in his Back, which sometimes prevented his walking erect. The Urine he discharged was small in Quantity, but never appeared at all purulent, or deposited any other than that Kind of flakey, mucous Sediment which a Stone in the Bladder generally produces. Finding more Ease by keeping himself in an horizontal Posture, he in a little Time took to his Bed, where languishing for a few Days in a Kind of comatous State, he expired in about ten Months after his first Complaint.

UPON examining the State of the urinary Parts, a Stone was found in the Bladder nearly as big as a Duck's Egg; the Ureters rather enlarged in their Capacity; and in both Kidnies an Abscess, which had consumed their Substance so much that they were mere Cyfts full of Matter.

THOUGH many more Instances might be produced to support the Reality of this Circumstance, it may perhaps be much more satisfactory to endeavour to shew in what Manner this happens.

THE Substance of the Kidney is now ascertained to be a vascular Congeries of Arteries, Veins, Corpora Globosa *, and

* It has been advanced by some, that there are no Follicles or Cells in the Composition of a Gland; yet, though no such Appearance is to be observed in any other Gland, we must not discard them from the Kidney; but look upon the Corpora Globosa as such, into which we can throw our Injections, when the Appearance is

and uriniferous Ducts, supported and connected together by a very fine cellular Substance. These Vessels, properly disposed, perform the Secretion necessary here, and at last terminate in the Papillæ, from whence the Urine drops into the Infundibula, whose Cavities are lined with a smooth Membrane, which not only incloses, but is firmly attached round, the Basis of the Papillæ, and afterwards continued downwards, so as to form the internal Coat of the Ureter, and necessarily, therefore, prevents any Communication with, or in a sound State suffers any Discharge to pass from, the Substance of the Kidnies, but what comes through the Papillæ.

As therefore, from the Communication of Parts thus intimately united and connected, we have the greatest Reason to expect that, when the one has been for any Time in a diseased State, the other must necessarily be affected, it will not appear strange, that a long and continued Irritation from any extraneous Body lodged in the Bladder should produce such spasmodic Constrictions of the small Vessels in the Kidnies, as may give Rise to an Inflammation with all its Consequences. This is confirmed, by an Observation almost always to be made, that both Kidnies are in a State of Purulence, and that the Abscess is always contained between the Membranes enclosing the vascular Substance of the Kidnies. Though the Matter is collected in different Vomica, when the Complaint is but of short Standing, yet, when it has been of longer Duration, it is generally found in one Cavity, which occupies the entire Kidney.

too regular to allow us to suppose it any other than the real Structure. The red Dots upon the Surface of the Kidney are so uniform, so alike in Size and Shape, that we cannot look upon them as so many Extravasations.

INDEED

INDEED we cannot expect the Obstructions here to be removed in the kind Manner as we find happens, when their Cause is only temporary; since the Continuance of the Stone in the Bladder must not only, by its Stimulus, encrease the Inflammation, but even assist and forward Suppuration.

As the Pus is therefore produced in this Viscus by a Rupture and Dissolution of the obstructed Vessels, as it is in other Parts, we have little Reason to expect the Abscess will be readily discharged through the Papillæ, whose Size can only possibly admit the finer Parts; and therefore, if at any Time the Matter should pass off in a large Quantity, more especially when full of sloughy Particles, we can only suppose that it gained a Passage into the Pelvis by the Destruction of the Papillæ, or of the Membrane lining the Infundibula. This is particularly illustrated by those Instances, where, though Matter has come away with the Urine, the Patient found no Relief, 'till, by the Pointing of the Abscess in the Loins, it has there been discharged externally*.

IN proportion then as both Kidnies are affected, and their vascular Substance destroyed, the Constitution must suffer, as well from a Redundancy of Humours as from the Retention of such acrimonious Particles necessarily secreted, and in such Quantity discharged by this Organ, in a sound State.

WHEN we reflect upon the Drowsiness and Degree of Insensibility, which most commonly precedes the Death of Patients thus circumstanced, as in the Case before mentioned,

* Vid. Bonet. Sepulchret. Anat. Vol. ii. P. 567, Obs. 23.

it is much more reasonable to ascribe the immediate Cause of this to the obstructed Secretion than to the Stone's immediately injuring the Bladder: For though we might suppose the Constitution would suffer from an Absorption of the Matter formed in the Kidnies as much as from Abscesses in other Viscera, yet the Effects produced from that Cause are well known to be in most Respects different, and to destroy the Patient by a long Train of hectic Symptoms, unless it be translated to the more vital Parts.

WE may hence infer the Necessity of performing Lithotomy early, when we are assured that a Stone too big to pass the Urethra is detained in the Bladder, where it will most certainly increase; and, by its constant Irritation, produce a Disease equally dangerous. Were there sufficient Reason to believe that a Medicine, capable of dissolving such Concretions in the Bladder, could be found out, what a Blessing would it prove to Mankind! But since we have little Room for such Expectations, from what has hitherto been offered to the World, we ought certainly to have Recourse to an Operation justified by repeated Experience, and the most probable Means of Relief.

As a further Proof of the Influence of the urinary Organs over each other, Instances are not wanting to convince us, that a Stone in the Kidnies will, in a similar Manner, produce a morbid Affection of the Bladder: Of which the following is a remarkable and particular Example.

MR. P—, of a tender Constitution, very subject to feverish Complaints, in 1737, when about thirty-three Years of Age, had frequent Attacks of a Cholic, seemingly of the
nervous

nervous Kind, attended with an Obstruction to the usual free Discharge of his Urine. Soon after this, he began to void Gravel, and some small Stones of a whitish Colour, whose Size suffered them to pass easily through the Urethra.

IN this Condition he continued until 1752; when after a long Journey, the Pains in his urinary Passages were considerably increased; he first began to make bloody Water, and observed his Urine to let fall a copious thick Sediment. From this Time, though his Cholic returned much oftener, and with greater Violence, he never could find, that he discharged any Gravel or stony Concretions. He was now very frequently tormented with a fixed gnawing Pain in the Region of his Kidnies, which darting into the Abdomen occasioned frequent Returns of his Cholic, with a great and very troublesome Sickness at his Stomach. His Urine, when first discharged, was very thick and turbid, but in a little Time, after depositing a large Quantity of purulent Mucus, would assume an healthy Colour and natural Appearance.

TOWARDS the latter End of the Year 1760, he began to void his Water with the greatest Difficulty, owing to some Impediment he could perceive it met with at the Neck of the Bladder. His Attempts therefore to discharge it were frequently ineffectual, though perhaps in a little Time afterwards it would dribble away involuntarily. If he stooped down, he was attacked (as he expressed it) with a most troublesome Crick in his Back; and, if he took an Airing on Horseback, or even walked for a considerable Time, he most commonly made bloody Water.

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REDUCED therefore to the greatest Degree of Weakness, his Appetite failed him so that he could relish nothing, his Breathing became very difficult and troublesome, and he suffered frequent Returns of most excruciating Pain in his Kidnies and Bladder; when, in the Month of *September*, 1764, Death put an End to his most wretched and miserable Being.

IN a Person, who had suffered so much Pain, and for such a Length of Time, I never observed such a prodigious Quantity of Fat as every Part here seemed loaded with both externally and internally: So that, upon opening the Abdomen, the Omentum appeared of a prodigious Size, and from thence descending into the Scrotum, had formed an Hernia rather exceeding a Child's Head in Bigness. Upon removing the Intestines, I found the right Kidney as big again as natural, and containing a Stone of a very hard and firm Texture, weighing an Ounce and three Quarters, which had taken the exact Form and Shape of the Pelvis and Infundibula, as represented in Plate I.

THE Substance of this Kidney was enlarged to twice its natural Size, and Thickness; and the Pelvis, with the Membrane which lines the Infundibula, was considerably thickened and indurated. Its Ureter appeared in the same Condition, but very much diminished in its Capacity: Neither in the Kidney, Pelvis, nor Ureter was there the least Ulceration.

THE opposite or left Kidney was reduced to half its natural Size, and appeared little more than two Membranes, with a small Quantity of intervening Parenchyma, which seemed not to have been reduced by any Suppuration, but

as it were by a mere Atrophy, or Loss of Substance. The Ureter from this Kidney was much enlarged; the Body of the Bladder continued very sound, but from its Neck a fleshy Substance projected inwards, about half an Inch in Length, and near the Size of the Extremity of one's little Finger, and appeared rather softer than the Prostate Gland, which was enlarged to the Size of a Pullet's Egg, and quite schirrous. The other Viscera were sound, and had their natural Appearance.

THOUGH in this poor Man there were the most certain Signs of a diseased Kidney for such a considerable Time, yet his Urine, though discharged with some Pain, met with very little Interruption in its Passage through the Neck of the Bladder, until his renal Complaints were become very severe. From that Period he began to feel an Uneasiness in his Bladder, which in a little Time increased to such a Degree, that he could seldom discharge his Urine, but with the greatest Pain and Difficulty.

THE urinary Passages are, we know, constantly furnished with a thin, light Mucus, secreted by proper Vessels to defend them from the Acrimony of the Urine, and which, upon any Irritation, is liable to be increased considerably in Quantity. One certain Effect therefore produced by a Stone in the Bladder or Kidnies, is a greater or less Discharge of this Mucus, according to the Degree of Irritation.

IN Process of Time, as the Stimulus becomes more constant and violent, and an inflammatory Disposition obtains in the Membrane, whose Vessels secrete this Mucus, it is dis-

charged of a more thick and tenacious Consistence of a yellow Colour, and purulent Appearance. Something similar is to be observed in the Mucus secreted by the Pituitary Membrane upon catching cold. In this State it acts as an injurious foreign Body, and is of itself capable of producing the most painful Symptoms *.

HENCE the Bladder becomes liable to suffer from a Stone in the Kidney as well by a spasmodic Affection, as from this morbid Secretion of Mucus.

SUCH frequent Irritations therefore will not only induce a greater Sensibility than natural to the Bladder, but produce Obstructions in the Vessels of its Sphincter, and Prostate Gland. Hence these become enlarged and indurated; for so we most commonly find them, when an inflammatory Disposition has subsisted for any Time in these Parts.

* Sed alia adhuc ratione spasmus et dolor vesicæ introducit, ex renum videlicet vitio. Interdum enim ex his purulenta et viscida materia, interdum calculi per ureteres in vesicam delabuntur. In utroque casu nisi peregrinus hospes tempestive foras ejiciatur, varia fontica mala et in his vehementissimum spasmus ciere valet. Quodsi enim tenacior et acrior materia est, parietibus vesicæ, imprimis circa collum adhæret, et stranguriam, disuriam, tenesmus, inflammationemque excitat, vel membranas vesicæ clandestine ac lente magis erodit, atque ita hanc exulceratam reddit.

HOFFMAN.

C H A P. III.

Of the Termination of Abscesses in the Liver by a Discharge of Matter through the biliary Ducts.

SECTION I.

ABSCESSES of the Liver have been considered as of two Kinds, formed by Fluxion or Congestion; that is, either as small suppurated Tubercles, or Vomicae, at different Points without any Communication, or as collected in one distinct Cavity, while the remaining Substance of the Viscus is free from any such Affection: The former Kind has been looked upon as the Event of a sudden Inflammation; the latter, as brought about by Length of Time, greater or less, before the Suppuration be duly completed.

FROM the Circumstances of these two different Events are drawn two Conclusions, to be observed as Prognostics, relative to the Termination of such Complaints, either for the Safety or Danger of the Patient; and which generally turn upon this Point, that the Inflammation in the dispersed Abscesses being small and quickly terminating, no sufficient Adhesion can be formed to the surrounding Parts, where a Discharge may be procured outwardly; whereas by the Enlargement, as well as Inflammation for a Time subsisting to complete the larger Abscess, the Liver comes in Contact with, and is attached to, the Peritoneum, and by this Means an Opportunity is gained for its proper Discharge outwardly.

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THIS is certainly a very desirable and fortunate Circumstance, and perhaps the most salutary Means for the Termination of this Disease. But though an Adhesion be formed to the surrounding Parts, so as to prevent the Effusion of the Matter into the Abdomen, whereby a purulent Ascites is avoided; yet the Discharge, however procured, should be from the most depending Part, as we always wish and endeavour to provide for in Collections of Matter elsewhere. Hence Art, upon many Occasions, proves a most serviceable Assistant to Nature; and when the Vigour of the Constitution is not too much overpowered, her Efforts from such Assistance are extraordinary: Hence the Crisis becomes perfect, and the Constitution entirely recovers itself from the most dangerous Attack.—The Truth of which is remarkably evidenced in the subsequent Case.

W. F. about thirty Years of Age, was attacked, from drinking Cyder when warm at Work, with a Pain in his Bowels, which for a Fortnight was attended with a Loss of Appetite, and great Dejection of Spirits. At this Period his Complaints encreased, and all the Symptoms of an Inflammation came on, fixed near the Centre of the right hypogastric Region, and were attended with a considerable Diarrhæa.

HE now lost some Blood from the Arm, but in an insufficient Quantity, so that neither the Bleeding, nor Medicines he made use of, availed in the least; but at the End of the third Week all the Symptoms of a forming Suppuration appeared, and Pus in a few Days after came away with his Stools which were several in the Day.

A Fulness might now be perceived externally at the Part where his Complaints were seated, while his Strength and Flesh were reduced daily.

IN this State, at the Expiration of nine Weeks, he was admitted into our Infirmary, where Medicines of the balsamic Kind were prescribed for him, and a proper Diet necessary to support such a Discharge. Emollient Clysters were likewise thrown up, from a Suspicion that the Seat of the Vomicæ might be within the Reach of their Action; as well as to bring away the acrimonious Matter, that might otherwise lodge upon and fret the Intestines.

STILL however he continued upon the Decline, and an incredible Quantity of Matter tinged with Blood was discharged with his Fæces seven or eight Times in twenty-four Hours.

As his Pain appeared quite local, I was willing to try the Effect of a Beer Poultice, which was therefore applied to his Side twice in a Day, but without any immediate Relief to his Complaints: This Method however was continued near a Fortnight as the Part seemed daily to enlarge externally.

In a little Time the Integuments, which never were discoloured, and before yielded to the Pressure with scarce any Difference from their natural State, projected outwards as in an Ascites, though with this Difference, that in the Ascites the Abdomen is uniformly distended, while here the Tumour, entirely local, occupied the right Hypogastrium only. An indistinct Fluctuation might likewise be perceived within the Swelling by a careful Examination, which in a few Days becoming more sensible, I resolved to open it. During
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all this Time his Purging continued, and Matter was discharged by Stool, as before the Tumour appeared.

I therefore plunged a very large sized Trocar into the depending Part, which seemed most favourable for continuing a Discharge, and upon drawing out the perforating Instrument, there issued through the Canula a very fetid and offensive Matter, at first thin and sanious, but which, as the Discharge continued, grew thicker, 'till at last it was so viscid and gelatinous that it passed with the greatest Difficulty. Upon weighing it afterwards, it amounted to five Pounds Troy Weight. During this Discharge we kept a constant Pressure upon the Abdomen, as our Patient grew fainty and his Heart beat with an encreased Velocity, in Proportion as the Matter was evacuated. The Abdomen being quite sunk, and the Matter to Appearance all discharged, I passed a Roller round the Abdomen, and leaving the Canula in, with its Orifice stopped, he was then put to bed, where in a little Time he recovered his Spirits, and seemed cheerful.

WITHIN an Hour after the Operation, he voided a Chamber Pot full of Urine at one Time, a larger Quantity, as he thought, than all the Urine he had discharged for a Fortnight before. The succeeding Night he passed easy, with a natural comforting Sleep.

ON the Morrow the same Kind of Matter was evacuated through the Canula to the Amount of fourteen Ounces. His Stools, which before the Operation were so troublesome both in Quantity and Quality, now were natural, and discharged not oftner than once in twenty-four Hours. As
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the Matter had thus so free an Exit, I suffered the Cannula to remain in three or four Days, and then supplying its Place with a Sponge Tent dilated the Orifice in the Abdomen so much as appeared necessary. A free Discharge was continued by this Means; so that in a Fortnight from the Operation it amounted, upon the lowest Computation, to seven Pounds more, upon the whole twelve Pounds. During this Period his nocturnal Sweats left him, his Appetite grew stronger, and he daily recovered from that emaciated State to which the Violence of his Complaints had before reduced him.

FROM this Time the Discharge lessened daily, and he recovered his Flesh and Strength so fast, that at the End of eight Weeks he was discharged in sound Health from the Hospital.

THOUGH similar Circumstances, in some Instances I have since met with, have convinced me that this was a true hepatic Abscess, yet when the Patient first came under my Care I was under some Doubt of the exact Situation of the Abscess; for though he had suffered considerable Pain in the whole Extent of the right Hypogastrium, yet the Region of the Liver seemed not to be more particularly affected than any other Part, nor had he ever even the slightest Appearance of a Jaundice. The purulent Discharge by Stool was a sufficient Proof that the Vomica had a Communication with the Intestines; but the trifling Quantity evacuated at a Time made it evident that the Place of Communication was but small, and that the putrid Acrimony of the Matter

by stimulating the Intestines occasioned the frequent Stools. It was reasonable therefore to suppose it had gained a Passage into the intestinal Canal by some natural Outlet, for, had the Communication been opened by the Destruction of the Coats of any Intestine, the Frequency of the Diarrhæa would, in all Probability, have discharged so much of the purulent Matter, as in some Degree to have lessened the Tumour, and the Patient would have been more immediately, though for a short Time only, relieved.

BUT when the Enlargement of the Tumour, as well as the hectic State of the Patient, made an Opening necessary, tho' the Fluctuation was but deep felt, the Discharge peculiar to the Liver, as well as the Examination by a long, flexible, and very large-headed Probe, which would not pass in any other Direction than to the Liver, was sufficient to convince us of the true and original Situation of the Abscess.

NOT long after, another Instance fell under my Care attended with several similar Circumstances, but differing in Success as to the Termination of the Disease gave me an Opportunity of satisfying myself in many desirable Particulars.

T. H. about thirty Years of Age, and in general having enjoyed a good State of Health, was attacked in the Spring of 1760 with an Ague, which baffled all the Attempts made use of for its Cure above six Months, during which Time, among other Medicines, he had taken a considerable Quantity of the Peruvian Bark. At the Expiration of this Period, the Ague entirely left him, and he continued free from every Complaint.

Complaint for a Year and Half, when he was seized with a troublesome lingering Fever, from which he was at last relieved by a critical Abscess in his upper Arm.

ENTIRELY recovered from this Attack, he continued well 'till *Michaelmas* 1763, when one Day being hard at Work, and sweating much, he imprudently drank a Quart of four Cyder; upon which he was immediately seized with a violent Pain in his Bowels, succeeded by griping and bloody Stools: His right Side likewise became very troublesome and painful to him, and continued so, with different Degrees of Severity, 'till January 1764, when he was admitted into our Hospital.

To relieve these Complaints he had made use of but few Medicines, and was never bled but once, though from that Evacuation he found considerable Relief.

WHEN I first saw him, his right Side was much enlarged, and upon the Ribs very oedematous: His Stools very purulent and frequent, though small in Quantity: He made little Urine, and sweated profusely.

WITHIN a few Days after his Admission into the Hospital, I made an Aperture between the fifth and sixth of the spurious Ribs, from which a considerable Quantity of a fetid, glairy, and Ash-coloured Pus was daily discharged. His Stools were as frequent as before; nor could I observe one of his Complaints in the least diminished.

IN this State he continued near a Month without any remarkable Alteration, unless that he was sometimes rather more chearful, and pleased himself with the Hopes of a Recovery.

ABOUT this Time his Belly began to swell, and his Legs and Thighs became very oedematous, when early one Morning he was seized with an excessive Sickness, and in the Efforts of vomiting, which succeeded, found something, as he expressed himself, crack inwardly, and almost immediately a Deluge of Matter was discharged, through the Opening in his Side, very fœtid, viscid, and sanious. The Abdomen and right thigh, which before were considerably tumefied, entirely subsided, but his left Thigh and both Legs remained very oedematous.

THIS Discharge did not relieve him; on the contrary, his Appetite failed him daily, and he grew highly hectic. His Stools were so frequent that he was seldom an Hour without one, and his Strength and Spirits drooped apace.

DURING his Illness a proper Regimen and cordial Remedies had been constantly allowed him, but these availed so little that, quite worn out with Pain and Inanition, he died *March* the ninth, 1764.

UPON opening the Body we found the Liver closely attached to the Diaphragm, the right Lobe in great Part destroyed by Suppuration, and the Surface of the Ulcer, which was very extensive, black and crisp as if burnt to a Coal. From the AdhæSION of the Liver on the right Side to the Peritonæum the purulent Matter had been confined as in a *Vomica clausa*; for, as the Peritonæum was no where destroyed but about the Aperture, none of the Matter had been discharged into the Abdomen, and hence near a Pint remained in the Cavity of the destroyed Liver.

THE Body of the Stomach was in good Condition, but the Pylorus rather streightened and indurated; the Coats of the
Duodenum

Duodenum were much thickened, and in its Cavity was contained some Matter similar in Colour, though more diluted than what had generally passed off by Stool. The Bile in the Cyst was almost black, but very viscous and ropery. All the other Viscera in the Abdomen were found and of good Appearance.

THE Capacity of the Thorax was much lessened, but particularly so on the right Side by the Enlargement of the Liver. The Lungs were found, but attached to the Pleura in several Places.

IN this Case the local Symptoms were sufficient to ascertain the Seat of his Complaints, and thus it differed from *F*'s: But we find some Circumstances in both, which seem to contradict the generally received Opinions, as to the Manner in which Suppurations of the Liver may terminate with Safety to the Patient.

ABSCESSSES in this Viscus have usually been considered as capable of four Terminations; 1st. By adhering to the Peritonæum and bursting outwardly; 2dly. By passing through the Biliary Ducts into the Intestines, and being discharged from them by the Anus; 3dly. By being absorbed into the Circulation, and thrown off by the Kidnies, &c. 4thly. By bursting into the Abdomen, and there producing a purulent Abscess.

THE first appears from *F*'s Case; nor are other Instances wanting to prove it. The second deserves to be considered; for though in both Cases just recited a purulent Matter was discharged in no inconsiderable Quantity every Day, yet neither

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of the Patients ever appeared to be in the least thereby relieved. Perhaps a Reason may be assigned for it thus :

How the Bile is secreted, and afterwards taken up by the Extremities or Beginnings of the biliary Pores or Vessels, is immaterial to our present Purpose. We need suppose only that such Vessels must at first be very fine and small, and that they may be partly destroyed by the Suppuration in the same Manner as the other Parts which help to form the Substance of the Liver ; yet from the consistence of the Matter found here, which is in general dreggy, full of Sloughs, and not at all laudable, how can it be supposed capable of passing through Canals which many of its sloughy Particles far exceed in Size ? or can any Thing be admitted but what suits the Diameters of the Vessels ? If so, what cannot pass will by its putrid Acrimony continue to corrupt and destroy the remaining Substance, 'till at last a larger Opening be procured into the biliary Ducts themselves, by which Means the external Membranes only of the Liver may be, as they many Times have been, left remaining *.

THE Existence of Matter in the Duodenum, as in *H's* Case, proved sufficiently how it entered the Intestines ; and the Matter in both Cases, when discharged by Stool, was smooth, and free from any dreggy sloughy Particles, though in the one when let out by the Operation, as in the other when examined after Death, no little Quantity of small putrified Substances, like Bits of Flesh, appeared in the purulent Colluvies.

* See many Instances of this Kind in Bonet. Sepulchret. Anatom.

BUT if the Abscess be small and formed in the concave Part of the Liver, and the Inflammation first produced from some offending Cause in the Intestines, the Colon by an Adhesion to the Liver, under which it immediately lies, may be perforated, and the Pus evacuated by Stool to the much greater Relief of the Patients. In such Cases the depending Discharge, and its ready Passage from the Body, are principally conducive to the Cure; and the Constitution is much less liable to suffer by the Matter being taken up by the bibulous Vessels of the Colon alone, than when it enters by the biliary Ducts into the Duodenum, from whence it must pass through the whole Tract of the Intestines.

IN the Memoires of the Royal Academy of Surgery at *Paris*, Vol. I. we meet with an Instance of a Lady, who was relieved from an Abscess in the Liver by several copious, purulent Stools, and survived this Attack seven Years without the least Symptom of her former Complaint. Upon her Decease by a malignant Fever, Mr. *Petit*, who had attended her in her former Illness, being very desirous of inspecting the Marks of her former Disease, opened her, and found the the Liver adhering to the Colon, into which the Matter had been discharged, and was thence evacuated by Stools.

WE may then much more reasonably suppose that when the Symptoms have preceded which generally attend the formation of Abscesses in the Liver, and the Matter peculiar to that Viscus is discharged by Stool to the great Relief and Recovery of the Patient, that the happy Event is brought about by an Adhesion to, and perforation of, the neighbouring Intestine, whereby the Matter gained Admittance, rather than by its Passage into the Intestine by the Biliary Ducts.

SECTION II.

Of Abscesses of the Liver attendant on fractured Skulls, &c.

IT frequently happens that Abscesses are found in the Liver of those who have died from an injured Brain, which have been attributed by some to a Translation of Matter from the Head to the Liver; by others, to a sympathetic Affection of the Nerves; and by some Moderns, to a disturbed Circulation of the Blood in consequence of the Violence committed on so noble a Part.

PAREY, Meekren, and other Writers in Surgery, mention this complicated Circumstance, but seem at a Loss how to account for it otherwise, than by supposing the Suppuration first formed in the Head, and being there absorbed afterwards deposited upon the Liver. But amongst those who support this Opinion *Petrus de Marchelli* advances something singular *, ‘*Observavi sæpissime, says he, quod quando in his*
‘*vulneribus collum incipit dolere, parte potissimum postica*
‘*et laterali, tunc materia purulenta delabitur ad thoracis et*
‘*abdominis cavitatem,—quanquam hujus observationis ignari,*
‘*existiment, abscessus obortos in his partibus, quorum ra-*
‘*tione patientes moriuntur, non ex capitis vulnere; quod ex*
‘*capite copiosum pus posse ad inferna viscera delabi, non sibi*
‘*persuadeant;*’—hereby offering a particular Symptom as a
‘*certain Indication of the Time when the Matter is passing*
from the Head to the Cavity of the Thorax and Abdomen.

* Observation. medic. chirurgic. sylloge. Chap. XV.

THAT *Marchetti* had observed this Complaint in some Patients, who having received an Injury upon the Head, might afterwards, when dead, be found to have an Abscess or Abscesses in the Liver, his Character, nay his undenied Authority in Surgery, forbids us to doubt; yet that this Circumstance may proceed from another Cause we have Reason to think, since other Authors, who have taken Notice of this complicated Disease, have never once mentioned this Symptom, unless from *Marchetti*, which surely is too remarkable to be overlooked or forgotten.

It is not unusual for Patients, who have received any Violence by a Fall, or other Accident, on their Head, if not thereby rendered insensible, to complain, soon after the Injury, of a Pain in the Top of their Shoulder as well as above the Scapula; nay, in some, I have known this Affection more troublesome to them than the Injury itself, and this as soon as they recovered from the immediate Effect of the Accident. In such Cases this Symptom undoubtedly arises from the violent Shock communicated immediately to the Neck and Parts adjacent; and as perhaps the Effect of that Shock cannot be soon removed, such a Sensation will remain during the Course of the Illness, or 'till Death.

I once observed this in a very remarkable Degree in a strong, hearty, and robust Sailor who fell into the Hold of a Ship upon his Head. Upon Examination the Scalp was found lacerated, and as he was not rendered totally insensible by the Fall, he complained of a Pain in his Head, but which, as he observed, was not half so troublesome to him as a Sensation he felt in his Neck and Top of his Shoulder. Upon a slight Stupor coming on afterwards he was scalped, but

the Cranium could not be perceived in the least injured. He lived a Fortnight, and always, when sensible, complained that his Shoulder was most troublesome to him. About four Days before his Decease some Friends, who imagined he had been too much reduced by the repeated Evacuations, secretly let him drink freely of white Wine, which encreased his Stupor, and raised the Fever so high that he soon became insensible, and died about the Time mentioned.

UPON opening his Head the Dura Mater was found slightly discoloured under the Part where he was scalped, the Brain very much inflamed, and a trifling superficial Suppuration between the Dura Mater and Cranium. The Abdomen was not inspected.

'Tis true Aretæus and some others have taken Notice of a Pain in the Shoulder as a Symptom attending an Inflammation of the Liver advancing to Suppuration: But in such Cases there are other Symptoms which more particularly serve to fix the Signification of that Complaint. In the present Case, as the Complaint comes on immediately after the Fall before an Inflammation can possibly take Place, it most certainly can indicate nothing more, respecting the Liver, than that from such a violent Commotion that Viscus may likewise have suffered considerably. Hence appears the Distinction necessary to be made (supposing *Marchetti's* Observation to be just) between the Appearance of this Symptom immediately, or when other inflammatory Signs offer; as in the one it is occasioned by an Affection of the Nerves; in the other, from the Seat of the Inflammation being so near the Diaphragm which, through its intimate Connection with the Pleura, may give Rise to such a Sensation.

THE Dangers from an injurious Violence committed to the Head are in general to be reduced either to a Shock or Concussion of the Brain, whereby some of the vital Parts are injured; to a pressure upon the Brain by extravasated Blood or Lymph, and a Depression of the Bones of the Cranium; or, to an Inflammation and consequent Sphacelation of the Membranes of the Brain.

THE Effects of a Concussion of the Brain will always be in Proportion to the Degree of Violence offered; either Death will be the Consequence, or the Senses in some Measure rendered imperfect. If there be a Pressure upon the Brain, either from Extravasation or Indentation of the Cranium, which cannot be timely and properly relieved, the Patient becomes insensible, and dies paralytic: And as it is now, I believe, an acknowledged Truth, that extravasated Blood is never converted into true Pus, neither of these Accidents can in the least contribute that Matter, which was supposed to form the Metastasis. From an inflammatory Obstruction only then can we expect Matter to be formed, which must either be seated in the Substance of the Brain, or in its Membranes.

THE Difficulty with which all membranous Parts suppurate, and their Propensity, if the Inflammation is not dispersed, to putrify and sphacelate, give us little Room to suppose they can furnish the Matter for an hepatic Abscess; and though some Cases are upon Record to prove that a Suppuration may take Place in the Substance of the Brain, yet if Instances can be produced, wherein Matter has been found in no small Quantity in the Liver, when very little, if any Appearance of a Suppuration has been observed within the

Cranium *, we must at least allow, that Abscesses may exist in the Liver after an Injury received on the Head, without being derived, or occasioned by falling, from this Part to that abdominal Viscus.

PERHAPS the following Instance may help to illustrate this Matter.

Y. G. a hearty Lad, about nine Years of Age, fell down a considerable Precipice upon his Head. This was succeeded by a Loss of Sense, Coma, Vomiting, and violent Grindings of his Teeth. Upon Examination, the Scalp was lacerated on the Top of the Os Frontis, but the Cranium could not be perceived in the least injured. The Surgeon therefore, who was first concerned, ordered him to be plentifully bled, and the free Use of proper Laxatives. By this Method he seemed considerably relieved, and grew somewhat sensible; but, as the Drowsiness continued, on the third Day after the Accident, a large Portion of the Scalp was taken away, and the Arteries suffered to bleed plentifully. Upon this all his Symptoms abated, and on the eighth Day he was able to walk about the Room. The Wound suppurated kindly, and every Thing seemed to promise a Recovery.

* Gallus quidam in capite graviter cum ossis depressione luculenta vulneratus, cum non sine vitæ periculo evasisset, post menses aliquot in morbum incidit: Vocatus ad eum de affectus essentia ac symptomatis a medico, qui curam ejus habebat, ac tum forte aberat, nihil intellexi: Assistentes vero referebant medicum capitis vulneri dudum per sanato malum omne adscribere: Ego hominem ictericum cum lenta febre, delirio et totius corporis atrophia conspiciens alibi morbum causam latere suspicatus, ac jecoris regionem manu tractans duritiem cum dolore deprehendi, eamque eadem male affectam, cerebrum vero illatum esse pronuntiavi. Obiit vero ille eadem die.

In dissecto capite, nullum prorsus vidum apparuit: Abdomine aperto, hepatis substantia fere tota absumpta, ipsiusque loco putrilago ac purulentia tanquam in sacco inclusa inventa est. — *Ex observationibus Th. Mercurii Archiatri Davariæ.*

At the End of the third Week, he complained of a Pain in his Belly, attended with an Uneasiness in his Stomach, and Loss of Appetite. In a little Time his Abdomen appeared much swollen and tumified, and his healthy florid Countenance was changed to a pallid hue. The Wound on his Head, instead of continuing to heal kindly, threw out a fungous Flesh, while the Parts surrounding it became oedematous, and several Sinusses were formed between the Integuments and Skull. From this Time he daily grew worse, and died about the End of the fifth Week.

As I had seen him several Times during his Illness, I procured Leave of his Friends to inspect the Body. On Opening the Head I found the Dura Mater in a sloughy, putrid State under the Part injured, and upon the Surface of the Dura Mater there appeared a very small Quantity of Matter †, but without the least Appearance of Ulceration in any of the surrounding Parts. The Substance of the Brain was sound, and in every Respect of a natural Appearance. Upon examining the Abdomen, some Water was found in its Cavity, but all the Viscera remained in good Condition, except the

† A small Quantity of Pus is frequently found between the Cranium and Dura Mater of those who have died of Injuries on the Head, without any farther Appearance of Hurt to the Brain. A tumefied puffy State of the Scalp coming on some Days after the Accident, either when the proper Means to prevent an Inflammation have been neglected, or, though made Use of, have proved insufficient for its Relief, has been rightly thought to indicate a Separation of the Pericranium from the Skull externally. In such Cases the Dura Mater, if laid bare by the Trepan, will be found not only detached from the Cranium internally, but, according to the Violence of the Symptoms, will appear more or less in a putrid, sloughy State. An anatomical Inspection sufficiently proves to us how these two Membranes communicate, and are connected with each other, by the Vessels passing through the two Tables of the Cranium and its Medullium, or Diploe. We need not therefore be surprized at this small Appearance of Matter, since it is so easily to be accounted for by the Rupture and Destruction of these Vessels from the Violence of the Contusion at the Time of the Accident, or of the consequent Suppuration.

Liver, in which were several distinct Abscesses containing a considerable Quantity of Matter.

IN this Case it is to be observed, that the Symptoms which immediately succeeded the Fall were timely removed by the antiphlogistic Method; and I think it not at all improbable, that, had the Fall been productive of no other bad Consequence than what appeared at first in the Head, the poor Boy would have recovered. But as the affected Liver must unavoidably, by its Functions being impaired, disturb the Regularity of the Circulation; hence arose those new Symptoms which rendered his Recovery hopeless.

WE frequently see the bad Symptoms, immediately succeeding a severe Stroke on the Head, in a Day or two almost entirely removed, yet that the most malignant Consequences shall ensue, and this long after, when the Patient has been supposed out of Danger, or even almost recovered; here however the Indication of the impending Mischief is local, and may be known, as Mr. Pott has justly observed, by a puffy Tumour of the Scalp and the Detachment of the Pericranium from the Skull under such Tumour. But the Case in the present Instance is different, as the Wound never degenerated for the worse 'till the abdominal Complaints were violent, and the Constitution from the additional Mischief there seemed evidently upon the Decline.

TRANSLATIONS of Matter * from one Part to another are by no Means uncommon, but are frequently to be met with

* *Et si metastaseos doctrinam admitteremus, non ita constans est, ut hepatis abscessum perpetuo promovere, aut concomitari videatur; hepar enim quandoque affecto capite, in pus colligatum observaverunt, velut in Apoplexia, morbis comatosiis, &c. ubi nullum puris indicium vel causa proflaret.* — *Bertrandi de abscessibus qui vulnerebus capitis superveniunt.* — *Memoires de chirurgie, tome ix.*

after Amputations of the larger Limbs, where the *Vis Vitæ* is impaired, and cannot support that Discharge of Matter, so necessary to complete the Design of Nature in healing a large Wound; but under such Circumstances there is very little, if any, Appearance of an Inflammation, and the Matter is rather disseminated through the Viscus on which it falls, than as collected in one or more large *Vomicæ*. If therefore we should meet with the Liver after the Decease of a Person, from a Violence committed to the Head, in that Kind of hardened inflammatory State which almost always terminates in Suppuration, we must certainly look upon the immediate Cause of such an Abscess as confined to the Part, and that it was formed there as in other Parts of the Body, or as in other Viscera, where the Injury is local. Of this, we meet with a Case worthy our Observation in *Meekren*.

DIE septimo mensis Junii curæ nostræ subjectus Henricus Henrici Osnabrugensis, in quo ex ictu os frontis fractum, depressumque notabatur; duodecimo ab hoc tempore die obiit æger. In hoc æque ac in aliis decumbentibus, de dolore lateris dextri, puris in vulnere imminutione, denique febre, atque delirio, quærelæ fuerunt.

CALVARIA ablata, pituitosa occurrebat eaque corrupta materia, non solum in latere capitis dextro circa piam matrem, sed et in sinistro (eo quod ex concussione cerebri arteriæ laceratæ) circa sinus. Relicto capite, quod de dolore hypochondrii dextri, dum in vivis æger, valde conquestus, purisque in loco affecto imminutio considerabilis, ventris inferioris viscera accipimus; ad hepar ubi devenimus palmæ fere magnitudini *accedentem inflammationem* in eo reperimus, quæ

quæ sine dubio purulentæ collectioni anſam dediffet, ſiquidem diutius in vivis fuiſſet jam defunctus. *Meekren*, p. 38.

Is it not a little ſtrange that *Meekren*, ſo deſirous of aſcertaining the Nature and Formation of this Species of Abſceſs, ſhould paſs over ſo ſingular a Circumſtance with ſuch Inattention, and though rather inclined to the Opinion of a Mettaſiſis, ſhould tell us that an Inflammation was coming on, which, beyond a Doubt, would have produced a Collection of Matter, if the Patient had lived a little longer. Surely no one would ſuppoſe that an Inflammation in one Part could invite Matter from another; or think otherwiſe than that, if an Abſceſs is formed in a Part where an Inflammation has ſhewn itſelf, the Matter muſt be there generated by the uſual A& of Suppuration!

As this Abſceſs has been found in the Liver, after a Violence committed to the Head, which did not come to Suppuration, we muſt look for the general Cauſe of it elſewhere. *Bertrandi* *, diſſatisfied with this Doctrinè, as well as with that which ſuppoſes the Abſceſs to be produced by a ſympathetic Affection of the Nerves, endeavours to account for it from a diſturbed Circulation, in Conſequence of the Violence committed to the Head; but this, I think, appears much leſs reaſonable and ſatisfactory than the former. For granting that the Force of the Circulation is increaſed by the inordinate Influence of the Nerves when an Injury has been offered to the Brain, and, what is ſtill more, that the Blood in conſequence thereof may be worked up to a greater De-

* Vid. Sur les abſces du foye. acad. royale chirurgie, vol. ix.

gree of Density, so as to occasion Obstructions in the sanguineous Vessels. Granting this, I say, why should the Liver be more particularly affected by this inflammatory Disposition? and why might we not equally expect this Disposition to be arrested in any other Viscera of the Abdomen and Thorax, where the Ramifications are equally fine and delicate? or, if the Abscesses in the Liver are formed solely from a hurried Circulation, how comes it to pass, that the Head itself should so remarkably escape these sad Effects? a Part, we know, as soon affected in a Fever as any of the whole Body, and from which, being primarily injured, all this Mischieff is supposed to arise.

In every Case I have yet met with (and I have carefully examined every Author that I could procure on this Subject) where Abscesses have been found in the Viscera after Wounds of the Head, I have always remarked some Symptom of an injured Brain immediately to succeed the Accident, as Loss of Sense and Motion, involuntary Discharge of Fæces and Urine, Rigors, Spasms, Vomitings, &c. These evidently arise from the altered State of that Influence, which the Brain has by Means of the Nerves over the different Functions of the Animal Oeconomy; and what still further confirms this is, that the same Symptoms succeed, tho' in different Degrees, the Attack of an Apoplexy, Epilepsy, Palsy, &c. from an internal Cause. May we not therefore with the greatest Reason suppose, that, the Functions of the Liver being injured by a sympathetic Irritation of its Vessels and neighbouring Parts from a diseased State of the Brain, of which the Vomiting and increased Secretion of Bile are sufficient Proofs, such Obstructions may be formed as afterwards to terminate in Suppuration?

I would add to this an assisting Cause which perhaps is too generally, if not always, overlooked. In those Accidents where the Head suffers most, as by Falls from on high, being thrown with Violence from a Horse, &c. the Body must likewise at the same Time receive a severe Shock, which may not only aggravate the

Injury committed to the Head by disordering the Viscera in general, but from the Size as well as soft pulpy Texture of the Liver, affect the Functions of that Viscus in particular, and thereby not a little assist in confirming those Obstructions, which afterwards could not be terminated but by Suppuration. The following Case communicated to me by my very worthy and ingenious Friend Mr. *Watson*, renders this Circumstance deserving of particular Notice.

A Man, by a Fall from a Ladder, received a Fracture of the Skull with a Concussion of the Brain, and at the same Time two Ribs were broken. The Man, exclusive of the usual Complaints attendant on such an Injury to the Head, laboured under a very difficult Respiration, which was supposed to arise from some Injury committed to the Lungs by the fractured Ribs. He died in a few Days, and upon opening the Abdomen a large Laceration was found in the Diaphragm, through which some of the abdominal Viscera were pushed up into the Thorax.—Surely a less Violence * than this, which produced so considerable a Laceration in the Diaphragm, would greatly injure the Substance of the Liver, Spleen, &c. so as of itself to lay a sufficient Foundation for an Abscess. Many severe Contusions of the Head and Concussions of the Brain, even attended with extensive Fractures, have terminated well, when other much slighter Accidents of the same Kind have proved mortal. This Difference may very probably proceed from some additional Disorder, which the Animal Oeconomy received from the complicated Injury of other Parts, which perhaps, thro' the insensible State of the Patient, is overlooked, 'till from the Re-

* Dr. *Grewile*, an eminent Physician of this City, favoured me with the following Cases. A young Man at Play with his Sweetheart, suddenly let loose her Hands, and she fell down upon the Ground. In a few Days the Abdomen began to enlarge, a true Ascites was formed, and she died soon after.—A Gentleman in attempting to mount his Horse, overpoised himself, and fell on the opposite Side. Though no immediate Injury appeared, in a little Time he began to swell, and not long after, like the former, died dropical.

lief and Mitigation of the violent Symptoms, or the Recovery of his Senses, he can signify those Complaints.

THE diagnostic Symptoms of an injured Liver tending to Suppuration will be then in general evident to a careful observer, and may be known by a Pain in the Abdomen about the right Hypochondrium, bilious Vomitings, irregular Shiverings, fallow Countenance, and a swoln tumid Belly, attended with a more or less remarkable Fluctuation of Water. Sometimes, when the inflammatory Symptoms run high, the Patient is attacked with a burning Fever and insatiable Thirst, in which Case a Delirium generally precedes his Dissolution.

C H A P. IV.

Of Indurations and Collections of Water in the Uterus and Ovaries.

A. J. forty two Years of Age, of a tender Constitution, though in the former Part of her Life very healthy, was in the Year 1755 delivered of her first Child without any Circumstance attending the Labour more than natural. From this Time she became subject to some slight, though continued Indispositions, which seemed to proceed from a slow lurking Fever. This however did not affect her Constitution so as to prevent her daily Attempts for a Subsistence, which the Meanness of her Circumstances necessarily required, 'till November 1759, when, following the Occupation of a Washerwoman, and heaving a Weight beyond her Strength, she hurt her Side, from whence ensued a troublesome Pain in the right Iliac Region, which, though at first trifling, gradually encreased, attended with frequent Nauseas and Vomiting. For this various Remedies were applied with little Effect.

In this Condition she was situated at the Beginning of the Year 1760, when, upon attempting to remove a Hoghead, a Substance as big as a Tennis Ball, and as she expressed it like Gristle, was discharged *per vaginam*. From this however she found no Relief; but, on the contrary, her Pains became quite violent, and a Tumour, which had some Time appeared in the right Iliac Region, encreased considerably.

HER

HER Menfes returned periodically every three Weeks; and to an immenſe Quantity, 'till two Months before her Deceafe, when they entirely diſappeared. She now had very little Eaſe but what was gained by Opiates, 'till at laſt quite worn out with Exceſs of Pain, ſhe died *October 30, 1760* *.

THE Violence of her Complaints admitting of no Relief, and the Singularity of many Circumſtances that occurred during her Illneſs, made thoſe about her deſirous of knowing, if poſſible, the Cauſe of her Diſorder. Upon a proper Inſpection the following Particulars were obſerved.

The Abdomen was uniformly diſtended, the Tumour protuberating from the two Oſſa Iliæ, and extending to the Mid-way between the Navel and Scrobiculus Cordis, with as exact a Similarity to the State of Pregnancy as can poſſibly be conceived.

UPON examining this Swelling carefully I could perceive ſeveral hard Inequalities, between which might be diſtinguiſhed a Fluctuation, though this rather more on the left than on the right Side.

SHE was emaciated to the higheſt Degree. Scarce any Appearance of the abdominal Muſcles remained; ſo that almoſt a ſuperficial Inciſion expoſed the Cavity of the Abdomen, when the Omentum immediately offered itſelf, an entire Co-

* That Diſſatisfaction, which too often prevails among Patients, eſpecially thoſe of the lower Claſs, afflicted with chronical Complaints, induced this poor Woman, in the Courſe of her Illneſs, to conſult various Praſtitutioners; from none of whom however ſhe received any other than a meer momentary Relief. It was impoſſible therefore to obtain ſuch a particular Account of every Circumſtance, that attended the Riſe and Progreſs of her Diſorder, as was perhaps neceſſary to illuſtrate the Appearances that offered upon opening her. At the Time of her Deceafe ſhe was under the Care of Mr. Apperley, an ingenious Surgeon at *Roſs, Herefordſhire*, who favoured me with ſuch Particulars as he could during his Attendance procure, and with whom I attended the Inſpection of the Body.

vering to the Viscera, extended quite down to the Pubis, and in many Places attached to the Peritonæum, though by such slight Adhesions as were easily separated. The Fat, with which this Part so often and in such Quantity abounds, was entirely dissolved and dissipated, so that nought was left but the double Membrane it is composed of, here and there through its whole Extent beset with innumerable, though small Scirrhotities. Its Adhesion to the Body of the Tumour, which now presented itself, was much more remarkable as it was almost general, and could not be separated without Force.

THE Cavity of the Pelvis was entirely occupied by a large and confused Mass, extended upwards to the third or fourth Vertebra Lumborum, where Part of the Intestines were collected into a Heap, but still retained their natural Appearance. Those that were in the Cavity of the Pelvis and under the Tumour adhered remarkably thereto, and, when separated carefully, appeared superficially and recently inflamed throughout the whole Extent of the Adhesion.

EXAMINING more particularly into this uncommon Appearance, we discovered a very singular Disposition of the neighbouring Parts. The Bladder, which at first could not be distinguished, was found by introducing a Probe thro' the Meatus Urinarius anteriorly and inseparably united to the general Mass, as was the Uterus posteriorly by as firm an Attachment. Upon endeavouring to extricate the Uterus, after having raised the whole Substance a little out of the Pelvis, we found the Tumour chiefly made up of a diseased Ovarium on the right Side completely scirrhou, on the left containing a Fluid in some considerable Quantity. The adjoining Fallopian Tube appeared well, though rather enlarged as it approached

proached the Tumour; but we could not perceive the least Vestige of its Fimbriæ. The whole Body of the Uterus was found and of a natural contracted Size, as well as the Fallopian Tube and Ovarium of the left Side.

UPON making an Incision into that Part of the Tumour where the Fluid was contained, there gushed out a yellow-colored and insipid Liquor, not in the least gelatinous, and to the Amount of near two Quarts. In this floated several large brown Lumps, through whose Substance a Number of black Hairs were interspersed like the Mixture of Hair with Mortar for the Plaisterer's Use*.

ENLARGING the Incision to inspect the internal Part of the Cyst, we found several Inequalities of a cartilaginous Firmness, from one of which arose an Offification of the exact Form and Resemblance to one of the Dentes Canini, and such indeed it proved to be †.

A Substance partly of a schirrous Firmness, and steatomatous ‡ where the Inflammation was, made up the Remain-

* The Appearance of Hair in such a confined Part, which has not the least Communication with any natural Passage, whereby it might be supposed to gain Admittance, has given Rise to many Conjectures; and by some later Writers has been supposed to be the Remains of Embrios that have perished there. But how can it be imagined that a Bud of Hair could escape that Maceration, which had destroyed all the other Parts? Or do we ever meet with the Hair even of a Fœtus at its full Time of such a Length, as has offered in such Instances as the present, frequently of two or three Inches? Can we reasonably be led to imagine that Hairs will continue to grow, when the Part destined by Nature to nourish them has long been destroyed? Will not the Similarity, if true, of Hair growing on dead Bodies, which has been offered to support this Opinion, be much better accounted for by a natural Vegetation? If so, will it not be more reasonable to look upon the Hair found in such Instances as Natives of the Part, and the Consequences of a Depravation of its Juices? And will not the Existence of such Hairs in a Part very little, if at all enlarged, confirm this, which was absolutely the Case in the opposite or left Ovary?

† This Tooth undoubtedly was swallowed while the Tumour was forming, when by perforating the Intestines and Ovarium it gained Admittance.

‡ May not a Schirrus in its early State be sometimes dissolved into a bad conditioned Abscess that shall afford only a thick and steatomatous Kind of Pus?

der of the Tumour : The external Coat of which, where it was the Cyst to the contained Fluid, was perfectly membranous, very thin, and of a similar Colour to the Intestines, and seemed as if it consisted only of the Peritoneal Coat ; but in other Parts through the Opacity of its Contents somewhat ashycoloured.

On laying open the Bladder, there appeared jetting downwards from its Fundus a steatomatous Protuberancy of a conical Form, and full as large as a Hen's Egg, which though a Part of the diseased Ovarium seemed as if it arose from the Bladder itself, so firmly were these two Parts united here together. 'Tis probable, that this Tumour received its Shape from the Action of the abdominal Muscles and their Pressure upon the Tumour whenever the Woman attempted to make Water, as at such Times she always complained of an Uneasiness and bearing down, which not only occasioned great Pain, but even sometimes prevented its Emission.

ALL the rest of the Viscera were quite sound and in a proper Condition.

VARIOUS had been the Conjectures upon the Cause of this Disorder : In general it had been supposed an extra-uterine Fœtus. The Date and gradual Advance of her Complaints, the regular Encrease of the Swelling so like to Pregnancy, and all this about the natural Time *, must be allowed in some Degree sufficient to deceive the most expert. Collections of Water in the Cavity, or even between the Coats of the Body

* The first Appearance of the Swelling and her Decease happened within nine Months.

of the Uterus, have imposed upon the greatest Men for a State of Pregnancy 'till the Expiration of the usual Period has disclosed the dangerous Fallacy. Indeed in Diseases of the Abdomen, which cannot be ascertained 'till they have some Time existed, and are so situated that we cannot reap the Benefit of an autoptical Demonstration, Matters must appear very doubtful even to the most ingenious and experienced, and this more especially, as the Diagnostics are too frequently confounded by a Similitude in Circumstances of the neighbouring Parts when diseased. Hence one, among the many great Advantages that attend the Inspection of morbid Bodies, is that of ascertaining the Diseases of particular Parts, as well as the different Disorders of the same Part, for want of which many Inferences have been deduced, that though sometimes right, yet are too frequently exceptionable.

IN Enlargements of the Ovaries it has been laid down as a Maxim, that the Tumour will appear on one or both Sides of the Linea Alba, as one or both of the Ovaria are affected. This however is by no Means just, several Instances having contradicted it, where the Tumour from one affected Ovary has been extended to the opposite Side, and enlarged the Abdomen quaquaversim. From what I have been able to collect from Authors, or deduce from my own Observation, this Maxim will be found more generally just when the Ovaries are schirrous*, than when a Fluid is collected in them: For as the Dilatation of hydropic Cysts is well known to en-

* I was once present at the Operation of the Paracentesis for the Ascites on a Woman, in whom no other Symptom had appeared than those usually attendant on that Disease. But when the Waters were evacuated, and the Abdomen was collapsed, two distinct Bodies appeared in the right and left Iliac Regions easily to be distinguished, the two Ovaria enlarged and indurated.

crease considerably in a little Time, (the contrary of which happens in a Schirrus where the Tumour advances but slowly) so if nothing resists the preternatural Enlargement when one Ovary only is affected, it may cross the Uterus, and in Time entirely occupy the Cavity of the Pelvis, and at last in a great Degree that of the Abdomen. Simple Collections of Water in, or Indurations of, the Ovaries, are indeed too frequent, but complicated as in the present Case, as the learned Dr. *Hunter* has observed, much more rarely to be found †. Indeed a Reason seems to offer why it should be so. Dropsies in whatever Part they are situated are generally supposed to take their Rise either from a Rupture of the Lymphatics or a diminished and weakened Power in the Action of the absorbent Vessels. The Permeability of the whole animal System will sufficiently account for their Beginning in the smallest Cell of the Cellular Membrane, and the well-known Dilability of that Membrane, why it should encrease sometimes to such an enormous Size. But how general soever these dropical Complaints may be, they are not more so than schirrous Indurations; for tho' the Antients confined such Affections to the glandular Parts only, yet I may venture to affirm there is no Part of the Body that has not suffered this Disease. That particular Construction, which was formerly supposed to constitute a Gland, is now confuted by that Perfection we are arrived at in the Art of injecting, which has shewn us that the composing Parts or Vessels of every Gland

† In this Respect a Distinction may properly be made between schirrous Enlargements attended with encysted Collections of Water, Hydatid like, where the Cyst is simple and formed by a dilated Lymphatic, or Cell of the Cellular Membrane, and those where the Induration and Water are included in the same Coat.

are the same, though differently convoluted, and figured for the different Secretions.

'Tis true those Parts, still denominated glandular, are most liable to Indurations and schirrous Disorders; because the vascular System in them is so variously complicated and interwoven that, when the secreted Liquor meets with an Impediment to its Discharge through the excretory Ducts, an Obstruction is formed, the Regularity of the whole System is perverted, and Indurations arise from a Retention and Inspissation of the grosser Parts. The same will be the Consequence whatever Secretion is obstructed, and not timely resolved, whether in the simple or most compound Gland.

As one of these Disorders therefore seems to arise from an Obstruction to the circulating Fluid through the Vessels in the Part affected, and the other from a too free Discharge of the Humours, or a Deficiency in the Power of Absorption, their Co-existence appears rather contradictory: But if we consider the Effects and Alterations Diseases often produce in the Oeconomy of the affected Part this will be easier accounted for.

WE cannot suppose, that when an Obstruction is once formed in the vascular System of a particular Part, that all the Vessels, which contribute to the Nourishment of that Part, must share the same Fate. Was that the Case, the Part affected would mortify and slough off: Whereas the Circulation must be continued to maintain that Life there necessary to prevent Corruption, which may be continued by collateral Branches, whose natural Capacity, though not at first sufficient for continuing the Circulation properly, may in Time be so enlarged (in Diameter) as to afford it an easy

Passage. If by the Addition then of fresh Matter the Part should be so distended and enlarged as to occasion a Compression on the neighbouring Parts, the Circulation of the Fluids will be rendered more difficult, and perhaps a Vessel ruptured, which may afterwards discharge a Fluid that in Time shall be collected in such a Quantity as to overcome any Power of the Absorbents.

THUS seems to arise that complicated Disease the Hydro-Sarcocele in whatever Part of the Body it may exist: For though we should carry our Investigations of the particular Structure of any Part to the greatest Minuteness, we shall always find it made up of the same Principles as those of the other soft Parts in general. The Ovaria appear to be a Congeries of Vessels variously configured and connected together by Cellular Membrane, for the Formation and Nourishment of the Ova in particular, and Ovarium in general*. And therefore the original Cause of either of these Complaints, or both together, may arise as well in the vesicular as in the cellular Part thereof, and this as in dropical Affections elsewhere. It has indeed been supposed, that the Enlargement of the Ova or Vesicles has given Rise to Collections of Water or Matter, &c. in the Ovary, by an Author of the first Character†, and we very well know that the Cellular Membrane is the general Seat of such Complaints in

* *Elegantes sane sunt vasorum plexus, qui ovarium undique investiant, et notatissima vasculorum minimorum expansio, quibus ipsa ovula perreptari deprehendimus, una cum fibrillarum, seu mavis, tubulorum subtilissimorum serie, quorum ope ex iis materia congrua, pro ovi mutatione jugiter secernitur, quibusve vel obstructis aut compressis aliterque lesis, ut viam liquori secernendo negent, sterilitas subsequitur, ruptis vero laceratisve a feri extravasantis vel lymphæ stagnantis, aut e vasculis suis ruptis, exundantis copia, hydropi dicto via sternitur.*—*Harderus in observationibus anatomico practiciis, et Boneti sepulchreto anatomico.* Vol. ii. p. 504.

† Haller. *Observat. patholog.*

other Parts of the Body, and therefore if an Occasion is given, why not here?

A Recollection then of the various Circumstances, attending a schirrous Ovarium, will shew us the little Probability of a Cure in its more advanced State. Extirpation will be found almost impracticable, since the Disease may not appear 'till its Size would require such an Opening, as would threaten the most imminent Danger, exclusive of the dreadful Risque of a mortal Hæmorrhage, or the Probability of the Intestines presenting themselves before the Tumour, as well as the Possibility of their adhering thereto *. In early Times only therefore are we to hope for Success, when the Heat, Pain, and other pathognomonic Symptoms peculiar to that Part, advise us of the Existence of an Inflammation, and hint to us the Necessity and Use of the antiphlogistic Method. And tho' we should err, by suspecting the Seat of the Disease in the Ovarium, when the Uterus, or any other of its Appendages, may be the Parts affected, the Direction of the Cure will not be in the least altered, as the same Remedies will I imagine prove equally serviceable to Parts so contiguous, and intimately concerned with each other.

SHOULD the Complaint be less inflammatory, and of the more indolent Kind, saponaceous and other external-resolvent Applications will probably assist the internal Medicines, amongst which perhaps Glysters will bear no small Share.

BUT after all, I am afraid schirrous Affections of these Parts will in general be found obstinately to resist even our

* See De Haen ratio medendi, pars iv. cap. 3.—Also, Medical Enquiries, Vol. ii. p. 41. where the Symptoms and Appearances of a diseased dropical Ovarium are excellently described by Dr. Hunter.

best directed Efforts, and for this Reason, that they are frequently a long while diseased before any Symptom appears. The Insensibility of the natural Substance of these Parts suffer Obstructions to be formed at first without any Inconvenience to the Patient, and unless the Schirrus is of the more malignant Kind, the first Indication of the Disease is generally an Enlargement and Tumefaction of the Part affected. This is in a great Measure illustrated by the following Instance.

MARGARET HOLDER, a married Woman, of a spare Habit of Body and tender Constitution, when about thirty Years of Age, was delivered of her first Child, after a difficult and dangerous Labour; from which Time she was subject to a very troublesome Pain in her Back and Loins, but more particularly on the left Side. After this she had three more Children, and recovered her Lyings-in to be as well as ever.

In the Harvest of 1764, she caught a severe cold from being wet through. Immediately the Pain shifted from her Back to the right Iliac Region, where it became at Times as violent, according to her Expression, as ever she felt in Labour. This continued with greater or less Severity for a Fortnight, when she imagined she could perceive some hard Nobs just above the Pelvis. She likewise observed, that the Abdomen began to enlarge, and indeed in a little Time it grew so big that, though a Widow, she was suspected to be with Child. This Scandal gave her great Uneasiness, and encreased a slow lurking Fever, which had constantly been troublesome to her ever since her first Complaints in the Abdomen. Being very poor, she had nothing to allay her Thirst, which now was very great, but Water, which she sometimes drank

to three or four Quarts in a Day. From this Time the Abdomen encreased considerably, and she became in her own Opinion dropfical.

SHE now found a great Bearing-down, as she imagined, of the Uterus; the Hardnesses encreased in Size, and her Legs and Thighs became very oedematous. She had frequent Inclination to make Water, but could discharge very little, and that with a Kind of Strangury; and though regular in her menstrual Discharge, 'till attacked with this Illness, she never observed the least Appearance afterwards. In this State she was admitted into our Infirmary under the Care of Dr. *Lysons*, and soon received considerable Benefit. The Abdomen, which was very much enlarged, and wherein an evident Fluctuation was perceived, subsided considerably, her Legs and Thighs were reduced almost to their natural Size, her Appetite, which was before considerably impaired, now returned so, that she could relish her Food, and she walked about with Pleasure and Ease. This Relief however continued but for a little Time, and her Complaints returned with greater Violence than ever. The Fever was strong and constant, and she complained of great Pain in her Bowels, with a constant Sicknefs and Inclination to vomit. The hard Substances seemed to encrease considerably, and her Thighs and Legs were much more tumefied than before. Finding herself evidently upon the Decline, and imagining she could not possibly live much longer, she desired to return Home, where she continued in the same State for about three Weeks, and then died. Being informed by Dr. *Lysons* of her Decease, I attended him to inspect the Body.

UPON opening the Abdomen we absorbed with a Sponge about three Pints of Water, which had been extravasated in its Cavity. The Intestines were much inflamed, and closely attached to each other, as well as to the Peritonæum by a considerable Quantity of a viscid glutinous Substance. The Colon particularly adhered to the Liver, which was very much enlarged and indurated. Indeed all the Viscera of the Abdomen were so firmly connected to each other, that it was with some Difficulty we could separate them so, as to examine into those Circumstances, which had been observed before her Death. The Pelvis was filled up with a large schirrous Substance, from which arose several round Bodies of different Sizes, from a small Walnut to a Hen's Egg, and proved to be those hard Nobs, which we could always distinctly feel. Some were entirely solid, and of a very compact Texture, whilst others contained Water in small distinct Cavities.

UPON making an Incision into the general Mass at its Centre, we found that the diseased Appearance was produced by a confused schirrous Enlargement of the Body of the Uterus and its Appendages, and which pressing upon the Rectum as well as preventing the proper Distension of the Bladder, occasioned that obstinate Costiveness, as well as those frequent Attempts to Micturition, which were constantly so troublesome to her. Though we examined carefully for the Ovaries, we could only distinguish that on the left Side, and which, upon being divided through the Middle, afforded an Appearance exactly similar to the Cellular Membrane in other Parts of the Body, when loaded with a thick and gelatinous Liquor.

WE cannot suppose that a Schirrus of the Uterus, or its Appendages, proves fatal merely from that Viscus being injured by such a Disease; since the Length of Time it has existed, and the remarkable Size it has arrived at, before the Patient finds it worth a Complaint, are evident Proofs of the contrary. But when, from its Pressure on any of the larger Blood-Vessels, the free and requisite Circulation is impeded, a Surcharge is produced above the Tumour, and a larger Quantity of Blood forced off by the lateral Branches that pass to the Intestines, whence Obstructions are produced, and an Inflammation brought on with all its Consequences: A State the Intestines are always found in under such Circumstances, and the undoubted Cause from whence arise those Adhesions, which, if the Disease has been of any Continuance so frequently and almost inseparably connect the Convolution: A Circumstance which readily accounts for that Want of Appetite, the Nausea, Fever, and great Oppression, so frequently complained of. Nor indeed can we have a more clear or significant Symptom of the Degree in which the Abdominal Viscera suffer in this Respect from such a Compression, than those oedematous Tumours of the Thighs and Legs, which almost always appear, when the Disease is advanced to an irrecoverable State.

IN the simple encysted Dropsy of the Ovary, we have some Reason to think our Attempts may prove successful, since the Trocar seems as capable of affording a proper Discharge for the Water, when collected in this Part, as in an Ascites. *Astruc* tells us, speaking of encysted Dropsies of the Fallopian Tubes, which he says, are to be treated

in every Respect like those of the Ovaries: " It is certain,
 " that a Puncture with the Trocar would be very advanta-
 " geous, if the Bag in which the Water is contained ad-
 " hered to the Peritonæum, in the Place where the Punc-
 " ture was made; but, if unfortunately the Bag should not
 " adhere, the Operation would be fatal, because the Aper-
 " ture made in the Bag would occasion a Discharge, into the
 " Abdomen, of the Water that was collected in the Dropsy
 " of the Tube. But as there are no Criterions, which shew
 " whether the Bag adhere in such a Manner or no, the Re-
 " sult will be, that the Operation may succeed sometimes,
 " and not at others. Therefore it ought not to be practised
 " unless in Cases of manifest danger." Our Author's Opin-
 " ion here seems rather too determinate. Though an Adhe-
 " sion of the Ovary to the Peritonæum would be in a great
 Measure serviceable for the more easy Introduction of the
 Trocar, when the Collection was small; yet when the Cyst
 is fully distended, and nothing occurs to prevent the passing
 of the Trocar through the abdominal Muscles, the Cannula
 of a sufficient Length remaining behind, will most probably
 afford as proper a Discharge for the Water as though an Ad-
 hesion actually existed. But should the Water not pass off
 according to our Desire, after the Cyst was wounded, but
 be discharged into the Abdomen, and the Puncture of the
 Cyst even remain open afterwards, so as to continue the
 Discharge, the Patient would certainly be in no more
 Danger in this Case than upon any other Occasion, when
 an Ascites is formed, where Relief is frequently procured by
 the usual Mode of tapping. A further Advantage may be
 procured

procured by giving the Parts an Opportunity of recovering their due Tone, the only probable Means, however brought about, of effecting a Cure.

BUT when the Dropsy is complicated with schirrous Indurations *, the Case becomes much more dangerous, a Cure is almost impossible, and the Chance of Relief very doubtful. In these Cases indeed the Attempts of Art are by no Means equal to the Efforts of Nature. Two Cases of this Kind have been lately communicated to me by a Surgeon of Character and undoubted Veracity, where the Water was discharged *per vaginam*, of different Consistence and Colour, to the almost immediate Relief of the Patient, and Diminution of the Abdomen: But that some round schirrous Tumours might be afterwards perceived, which, in every Respect, answered the usual Appearance and Feel of a schirrous Ovary.

SUCH Instances are very rare, and were it not for the remaining schirrous Bodies after the Discharge, they might lead us to a Supposition, that the Waters were originally collected in the Uterus.

* Dr. Hunter tells us in the Medical Inquiries, Vol. II. "that he scarcely ever found any Part of a dropsical Ovarium in a truly schirrous State: But that what at first View might seem such, proved upon cutting to be a compact Groupe of small Bags, or a spongy Substance filled with Jelly." Where the Cysts have been very numerous, I have generally remarked the Substance they sprang from to be rather sarcomatous, or spongy; but in the Instances, which have fallen under my Inspection, where the Fluid was contained in one Bag, which is in these Cases generally formed by the membranous Coat of the Ovarium itself, I have observed the Ovary to be as compact and heavy as almost any Schirrus I ever met with.

In these complicated Cases, where a Cure can by no Means be expected, we find the Patients have at several Times been relieved by the Trocar. — *Memoirs of the Academy of Surgery on Encysted Dropsies*; where Morand tells us, that he has several Times (by mistaking the Hydronic Cyst) thrust the Trocar in the schirrous Substance, and no other Accident resulted from the false Puncture than the slight Pain attending a simple Prick.

On Uterine Dropsies during Pregnancy.

M. H. a single Woman, twenty-seven Years of Age, of a strong and healthy Constitution, received a Kick from a Cow on the right Iliac Region, with such Violence that a Tumour was almost immediately formed under the Integuments, which being opened three Days afterwards discharged a considerable Quantity of Blood. In three Weeks the Wound was healed, and the Effects of the Contusion at that Time seemed entirely gone.

At the End of six Weeks she perceived the right Side of the Abdomen to be much fuller than the left, and with no small Surprise found herself daily to encrease so much in Size, that at the End of a Month more the Abdomen in general appeared to be equally enlarged as in Pregnancy; at which Time, after much Pain, and a Sensation of a great Bearing-down, she had a Discharge of about twelve Pints of Water *per vaginam*, and was reduced to her natural Size. In eight or nine Days she began filling again, in about a Month was as big as before, and then discharged nearly the same Quantity. Though regular in her menstrual Flux before she suffered the Contusion, from that Time she had no Appearance of it 'till the fourth or fifth Day after this second Discharge, when it returned in the usual Quantity, and disappeared at the usual Time.

In about fourteen Days after this Menstruation, she began filling again, and, at the End of thirteen Weeks, was as big as before, then discharged the same Quantity, and the Swelling entirely subsided. From this Time inclusive to the End of the ninth Month, she had eight more Discharges. At the

Expiration

Expiration of which Time * she was delivered of a Child, when no particular Circumstance attended the Birth, unless that the Lochia were in a much larger Quantity than usual. She had remained in these latter Months much bigger after each Evacuation than formerly, but, as she declared, did not think herself with Child, as her Menfes continued during the whole Time to return regularly at their proper Periods. The Child was very small, much emaciated, and lived only four Days.

FROM this Time she had several periodical Discharges, near the same Quantity at about five or six Weeks' Distance, 'till June 18th, 1761, when she was admitted into our Hospital, under the Care of Doctors *Grevile* and *Dowdeswell*. During her Continuance here she filled twelve Times, and had as many Discharges, in a greater or less Quantity; but, according to a mean Computation, they were equal to twelve Quarts each Time †. During one Collection her Breasts became very troublesome to her, and one Day discharged from the Nipple the same Kind of Fluid in such a Quantity, that she caught two Quarts in a Pot, besides what was absorbed by the Linen. Another Time, while the Swelling was encreasing, she was tormented with a constant Sickness and Pain in the Stomach, and frequently vomited Blood, to which indeed she was so prone, that if she stooped downwards, or bent herself forwards in the least, Blood would gush out of her Mouth.

* Just one Year and seventeen Weeks from the Accident.

† At the last Discharge before she left the House, what was caught measured twenty-seven Pints. She was generally sensible at such Times of a greater Bearing-down than usual, and then the Water gushed away almost at once.

AT different Times she was seized with strong Epileptic Fits and other Hysteric Affections, whose Attacks were sometimes so violent, that in the Paroxysm she would bite through almost every Thing that was put in her Mouth, and when she recovered out of them, was several Times bereaved of her Speech, and left in the greatest State of Weakness imaginable for some considerable Time.

ALL the Means used for her Relief were unsuccessful, and she was presented out *May 20, 1762.*

FOR the succeeding eleven Months, the Discharges passed off periodically as usual, without any other Difference than that they seemed rather to encrease in Quantity, and that once her Legs were much swollen and discoloured, a Symptom she had never observed before, and which alarmed her much. However this went off gradually and never afterwards appeared.

TILL this Time of filling, even during her Pregnancy, her Menses were very regular, as was observed before, tho' rather in a præternatural Quantity, and of a more faint Colour, but left her at their usual Time. They were generally succeeded by the Fluor Albus. Uneasy now at their not appearing as usual, she began to suspect herself with Child again, more especially, as after the second Discharge from the Failure of the Menses, she did not find the Swellings return as before. The Expiration of seven Months more put it out of Doubt, when she was delivered of a fine healthy Girl, without any particular Circumstance attending the Labour more than natural.

It is now * twelve Months since she was brought to-bed, and though from her Poverty exposed to great Wretchedness, she continues perfectly free from even the least Appearance of her watery Complaints; nor is there any Thing præternatural to be perceived in the Abdomen upon examining it externally.

A married Woman of a scrophulous Habit, very subject to hysterical Complaints, and who had had many Children, being about fifteen Weeks gone with Child, and bigger than usual at such Time, perceived a great Bearing-down, and violent Pains equal to any she had ever suffered in Labour: These were succeeded by a Discharge of Waters that continued to dribble from her for about a Week, and by the Number of Cloths wetted in a Day, amounted as she supposes to some Quarts. During the Discharge she was in continual Pain. From the End of the sixteenth Week, at which Time the Discharge totally ceased, she went on as well as in her former Breedings, 'till a Month before Labour, when the Discharge returned again, and continued more or less 'till she was delivered at her full Time.

If the Discharge intermitted for a Day or two, she suffered the most violent Pain on its Return, and such a Bearing-down that she could scarcely distinguish whether she was in Labour or not.

DURING her next Pregnancy she had some like Discharges of Water, one of which was succeeded by a Miscarriage about the eighth Month.

IN her third Pregnancy in this diseased State, she had Returns of her watery Discharges. For four Days before her Delivery, she evacuated a great Quantity, as she did for about the same Time after Labour, which was this Time very hard and tedious. From this Time she recovered a tolerable State of Health, and suckled her Child, for about nine Months, when, the Child dying, her Milk left her. About a Month after this, her Menfes returned, and were succeeded by a Discharge of Water with great Pain, as she had before experienced. In this Condition she is at present situated, March 1766. It must be remarked, that, during these three Breedings, she felt great Pain in her Legs, which were likewise much swelled, but particularly the right.

MANY Instances of simple uterine Dropsies are handed down to us. *Dodonaus* relates one *, which was mistaken for Pregnancy, but at the End of the ninth Month, the Pains coming on, the Waters gushed away and the Swelling entirely subsided. This Woman's Breasts were some Time afterwards filled with Milk, as though she had had a Child. *Schenkius* † has collected several, some of whom dying under the Disease, the Waters were found loose in the Cavity of the Uterus. Indeed the great Weight and Bearing-down, of which both our Patients complained, and which preceded the Discharge, with the sudden Gush of Water, afford the most presumptive Evidence, that this likewise was the Case here. From a spasmodic Constriction therefore of the Mouth of the Womb, must it have been collected and restrained, probably from

* *Observat. Medicinal.*

† *De Molis.*

that Irritability of the nervous System, so prevalent in them both, and which was capable of affording a Resistance, 'till the Water was collected in such an immense Quantity *.

In considering the Case of our Patients still further, it appears not a little singular, that the Uterus, though diseased, should continue in a State to be impregnated, and afterwards retain the Fœtus, when it suffered a Discharge of Water.

It has been observed, that the Uterus may become hydropical, after it is impregnated, but that it cannot be impregnated, when any Water is collected in it. *Lusitanus* † gives a good Reason for this, and it is agreeable to the modern Notion of Conception. But if, when the Waters have been evacuated, Conception should almost immediately take Place, it is probable that the Woman may go her full Time, and Parturition succeed with Safety both to Mother and Child, though the Waters be collected and discharged at different Times during the whole Course of Pregnancy. These

* Hydropical Collections in Cavities, which in a natural State are constantly moistened by a fine thin Fluid, are all formed alike. Some Writers have attributed them to a Rupture of those Vessels, whose Office it is to circulate the Fluid. But Dissections by no means prove this; and 'tis probable, that Exercise, or putting the Body into violent Motions, whereby Cures have often been effected, would, were this the Case, rather encrease than remove the Complaint.

When we consider the natural Power of the Absorbents, and the Readiness with which they frequently take up large Quantities of a Fluid very different from that for which they are allotted, may we not with greater Reason attribute such Collections to some Defect in the Action of those Vessels? *Musgrave* found that eighteen Ounces of Water injected into the Cavity of the Thorax of a Dog, were all taken up without the least permanent Injury to the Animal. What Quantity of Blood do we daily see extravasated by violent Contusions, and absorbed without occasioning the least Disorder in the Part? And how can we account for the Effects of brisk Vomits, active Purges, and riding on Horseback, otherwise than by adding to or restoring that Power of Absorption, of which from a relaxed or other diseased State the Vessels had been deprived? But of this more hereafter.

† Hydrops conceptum sequi potest, sed conceptus hydropem non sequitur, quia in aquoso utero gigni animal nequit, sicuti neque in aquosa terra planta, et quia per hydropem fere semper os uteri clauditur.

De Morb. Mulierum.

Cases are however very rare, and when they occur, it is the more extraordinary, that the Fœtus should not always suffer thereby. Hence some doubts have arisen, whether the Fluid thus discharged came from the Membranes of the Fœtus, or the Cavity of the Uterus: These we will briefly consider.

IN the Cavity of an Uterus, which had been a few Days impregnated, *nil nisi liquidum quid adparebat* *. In another of a longer Date, *Cavitas lymphæ sufferta occurrit, cui liberum adhuc ovulum innatat* †: Placenta primo mense graviditatis per tenue et breve ligamentum carneum alligatur alterutri uteri angulo, sed paulo post toto suo corpore ‡: Ovum majus et globosius fit, et incipit mole sua uteri capacitatem replere. Videtur autem tamdiu liberum manere, donec adeo magnum fit, ut convexitate sua uteri concavitatem contingat, tunc autem cum eo concrefcere **. As we find the Ovum is so unconnected with the Uterus in the early Times of Pregnancy, we may with the greatest Reason conclude, that if a Fluid should begin to be extravasated into the Cavity of the Uterus before the Membranes adhere in general, the Water thus collected might continue to be accumulated, and afterwards discharged, as though the Uterus was unimpregnated. A Separation may indeed be occasioned, after the Ovum has actually adhered, from an Obstruction in the vascular System of the Uterus.

BUT as the Ovum is at last so closely connected to the Uterus by the Chorion, how comes it to pass that the Embryo does not suffer by this Separation?

* Ruysch. Thes. 6^o.
Oper. Anatom.

† Ruysch. Observat. de Ovo.

** Haller de Conceptu prælest. Boerhaave.

‡ Riolan.

In an impregnated Uterus of four Months, which I had lately an Opportunity of examining, I remarked the Attachment between the Ovum and Uterus, and found that a small Force was sufficient to destroy the connecting Vessels of the Chorion. From a Number of these, after some little Time, there oozed a bloody Moisture, which came rather quicker, and in a larger Quantity, as I continued the Separation towards the Fundus, where the Placenta was situated and connected firmly with the Uterus*.

THE Attachment between the Chorion and Amnios was so weak and tender that they separated upon the least Motion almost spontaneously, nor did there appear, as between the Uterus and Chorion, the least organized Substance †.

It is generally supposed that the Chorion assists in conveying the nutritive Juices from the Mother through the Placenta to the Child: For this Reason, it was most natural to expect that the Fœtus from a Diminution of its Nourishment, would be much injured, if not destroyed. But

* The Appearances in this impregnated Uterus which I now have by me, answered in every Respect to the Description given us by Noortwyk. Chorion per veram cellulosam substantiam uteri cavo adcretum esse, quam separando deprehendi mollissimam, cujus ope univ[er]sa ovi superficies utero coharebat quam posset proxime, ita ut, elevata matricis substantia, nulla divisionis nota pateret sensui: sed dorso cultri leniter depresso ovo, vel eodem inter hoc et uterum reciprocato, facillime solvabatur istud vinculum. Baudem hanc cellulosam separanti vasa occurrebant numerosa per totum ambitum, ex chorio in uterum porrecta, impleta. Sic passim ovum utero hæsisse vidi; attamen circa placentam nexus iste quodammodo differebat; — vasa insuper numerosiora videbantur, quibus extra placentam emergentibus, atque in uterinos poros insertis, manifesta oculis communicatio patebat inter uteri et placente vasa. — Sed ad radicem placente ubi hæc per orbem supra chorion terminatur, cellulosa illa in ligamentosas lacinias collecta nexum denuo parum firmiorem exhibebat. Hinc vasa conspiciebantur copiosissima, capacissima, adeo insignia, ut eorum quædam digitum pueri potuissent recipere, &c. Vid. also, *Memro*, Medical Essays, Vol. II. Artic. 9^o.

† Amnio substrato, membrana chorion tot vasis in sui medio dotata, ne minimum quidem ramusculum impertiat, id quod non adeo mirum videatur, quoniam duæ hæ membranæ, chorion et amnion, sibi invicem leviter solum coherent. *Ruyssb.*

when we reflect on the particular Communication between the Body of the Placenta and the Uterus *; and consider the Resource of Nature upon many Occasions to supply the Deficiency of the Circulation in one Part, by an Increase of it in another, it should seem that unless the Water is collected in such Quantity as to produce an Abortion, the Fœtus rather suffers from a Want of proper Strength in the Mother than from any such partial Separation of the Chorion at the Neck of the Uterus, where the Water from its natural Gravity must necessarily collect.

THAT the Waters may be collected in a large præternatural Quantity in the Membranes which contain the Fœtus, every Practitioner in Midwifery must have observed. The Quantity however cannot be determined, as it gushes away upon the Rupture of the Membranes with such Violence. Sometimes, during a Labour which goes on but slowly, when a Quantity of Waters have been discharged, we meet with an unexpected Collection, which runs off as before. These we may venture to say, with the highest Probability, were collected only within the Membranes of the Fœtus, and that the Intermission to the Discharge proceeded from the quick Advance, and sudden Pressure of the Child upon the Mouth of the Womb not yet sufficiently dilated for the Birth.

WE sometimes meet with Cases where, at different Times before the Labour, the Woman has had a Discharge of Water *per Vaginam*, and yet we find, upon the Advance of the

* That the Fœtus is nourished by the Umbilical Chord is so clearly proved and maintained by *Monro* in the Medical Essays, Vol. II. that to use the Words of that excellent Physiologist Dr. *Whytt*, it appears, 'one of the few Points in Physiology, which ought for the future to pass undisputed.' Vid. also, *Northwyck*, p. 199.

Child to the Birth, the Membranes as turgid and tense, and the real Waters afterwards evacuated as though no such prior Discharge had happened: Does not this proceed from a Collection in the Cavity of the Uterus, which the soft and yielding State of the Os Internum at this Time suffers to be discharged *? *Mauriceau's* Opinion however upon such Cases, appears too singular to be overlooked †.

“ A Woman, says he, was delivered, after a quick Labour, of a Child in perfect Health, though about two Months before she had voided by the Womb in one Day more than a Quart of Water, and had continued from that Time to void more at Intervals.—It may be a Matter of Doubt, whether all the Waters thus discharged came from a kind of Hydrops Uteri, or whether they were the true Waters of the Child. Had they been the latter, the Woman must have been delivered after their first Discharge, because the Infant could not have remained in the Womb after so great a Discharge of its Waters. Nevertheless I am of an Opinion that

* *Dulcissima atque charissima conjux mea, dum septimo utero gestaret, statim ab initio gestationis, præter modum atque consuetudinem debilitata enervataque fuerat. Dolores ventris, et præcipue dextri lateris, maximi ac frequentes aderant. Circa regionem hepatis per intervalla, et quotiescunque fœtus in utero sese movebat, frigus moleltum ac dolorosum perſentiebatur. Interim venter in monstruosam magnitudinem intumefcebat adeo ut ipsam duos aut tres ad minimum enixuram fœtus, cuncti arbitrarentur. Spatio hebdomadam sex ante partum, crura pedisque hydropicorum more intumuerant, quinetiam dolores tum ventris, laterisque dextri, tum quoque renum et crurum, adeo aucti fuerant, ut noctes diesque continuo ejulare, atque lamentari coacta esset, lectumque amplius sibi egredi non liceret. Die 2. Martii anno, 1605, dolores parturientium, quamvis leviores, continui tamen ipsam investaverant, qui sensim accreti, usque ad quartam diem ejus mensis, qua circa septimam vespertinam dolore vehementissimo correpta, os uteri apertum, indeque ultra libras 18 mercatorum, aquæ limpidissimæ, nulloque cruore admixto, maximo ac uno impetu effluxere atque in isto motu fœtus, ad exitum sese paraverat. Et postquam per semihoram quievisset, et aliquantum confessionis alkermes, cum aqua cinamomi, sine vino destillata, dissolute sumpsisset, rursus dolore et conatu maximo correpta esset. Tum primo aqua, quæ fœtum comitari solet, ad libras novem effluxa, instante nona vespertina, puellum simul peperit robustissimum.—*Hildanus, Cent. 2. Observ. 56.**

† *Mauriceau, Obser. 688.*

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some Part only of the true Waters of the Child were thus discharged, from a Rupture made in the Membranes, in some higher Part, which not answering exactly to the internal Orifice was the Occasion they did not come away entirely, and that a Part of them remaining, the Delivery did not come on, as it must have done, had the Waters been entirely discharged at first." How inconsistent is our Author in his Opinion here!

THE Waters contained within the Membranes of the Fœtus not a little assist in distending the Uterus. They likewise defend the Child from external Injuries. If therefore the Membranes are at any Time so ruptured as to lose a Quantity of Water, equal to a Quart, the extending Power being thus diminished, the Uterus will necessarily begin to act as an hollow Muscle, and consequently by its Contraction continue the Discharge, unless, as I before observed, for a little Time prevented by the Advance of the Child. This we frequently see verified in lingering, or, as they are properly termed, dry Cases, where the Membranes being burst, and the Labour Pains not coming on kindly, the Uterus contracts closely round the Body of the Child, and occasions frequently the greatest Danger.

C H A P. V.

Of that Disease of the Joints, commonly called

WHITE-SWELLING.

SECTION I.

DISEASES of the Joints, in whatever Manner they appear, or from whatever Cause they arise, are always attended with the greatest Danger to the Patient, and afford the most perplexing Incidents to the Surgeon. Indeed if we consider the nice Manner, in which every Articulation is constructed, and the complicated Motions thereby performed in a sound and healthful State, we have Reason to expect, that the most troublesome Consequences may arise, even from the least Injury.

No Articulation is perhaps subject to such a Variety of Diseases, both within and without the Bursa Ligament as that of the Knee, as well from its great and violent Motions, as the various Accidents from external Injuries to which it is constantly exposed: But of those Diseases no one in general terminates so dreadfully as that we propose to consider, and which among the *English* is commonly known by the Name of *White-Swelling*. The Frequency of this Complaint, the terrible Prognostic so generally formed upon it, and the little Success attending the usual Treatment of it, first determined me to consider it attentively; and, by examining the Parts aggrieved in the different Degrees of its Progress, to endeavour to ascertain its Nature and Effects.

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To this End therefore, it will be necessary to premise a few general Reflections on the Nature and particular Structure of this Joint.

WHEREVER Bones are articulated and joined together for Motion, their Extremities are covered with a smooth elastic Cartilage, lubricated by a slippery Fluid, which is secreted from a glandular Compages properly situated for that Purpose, and from the Vessels of the Ligaments, which immediately surround the Joint, and serve to confine the Extremities of the Bones in a proper Degree of Union. Thus is every Articulation constructed, though, according to the Motions to be performed, some particular Provisions are added by Nature for their Security and Strength. In the Knee, for Instance, as a *Ginglimus* Joint, the prominent Extremities of one Bone are received into the depressed and hollow Cavities of the other; yet it is besides furnished with additional semilunar Cartilages, which render the Motions more equal, steady, and extensive: Some strong, tendinous Expansions, as they pass over the Joint to be inserted in the Parts below for their Use, are likewise joined in with the Ligaments by a cellular Membrane, and afford not a little additional Strength and Compactness to the Whole.

THE Glandular Compages, Cartilages, Ligaments, tendinous Expansions, and cellular Membrane, with the common Integuments, will at times, if diseased, afford Symptoms and Appearances peculiar to each, and by their immediate Connections and Attachments will have such an Influence on each other, as, if not timely relieved, to affect the Whole. Diseases of the Knee then may be properly considered as those taking Place above or on the Outside of the Capsula of the

the Capsula of the Joint, and those which the Parts included within the Capsula are more particularly liable to.

BEFORE the last Century we find nothing advanced by Authors, particularly relative to our present Subject: And what sufficiently supports this Assertion, as well as proves the little Knowledge even the Moderns had of this Disease, is their confounding it with, and adopting the Name of, a Complaint from which it widely differs.

RHAZES, who, from his consummate Knowledge in Medicine, and unwearied Diligence in collecting Observations, may justly be considered the Prince of the *Arabian* Physicians, takes Notice of a Disease never before mentioned, which he calls Spina Ventosa, and which consisted according to his Definition, *in a Corrosion and Corruption of the Bone, attended with pungent Pain and Swelling.* This Disease, in some few Particulars, bears an Appearance with the Complaint we are treating of, and therefore the Name of Spina Ventosa has been indiscriminately applied by many of the Moderns to this, as well as to every Enlargement of the Joint, where the Texture of the Bone was destroyed, become rotten, and the surrounding Teguments enlarged and tumefied.

SEVERINUS, whose Works bespeak him an excellent Practitioner, seems to have fallen into this too general Error, in a Tract he professedly wrote on the Abscesses of the Joints peculiar to Children. Treating on the Nature of this Affection, he first examines how far the Term of Spina Ventosa was applicable to the Complaint, and its Appearances; and then concluding, that it was not sufficiently expressive to the *Europeans*, quæcunque sit Barbari nominis vis, chuses rather to call it by the compound *Greek* Word Pædarthro-

eace *. But when he comes to recapitulate, he doubts whether the Disease he has been treating of under that Title be the same mentioned by the *Arabian* or no †, because in the one the Pain was very considerable, in the other as trifling.

UNDER the specious Title of *Pædarthrocace* it was reasonable to expect something relative to the White-Swelling; but the Complaint he considers evidently appears to be different from our present Subject, as in the one the Bone is first affected, in the other the Parts above it ‡.

Of the Authors I have yet met with, *Wifeman* is the first who says any Thing satisfactorily upon this Head; and in

* Num igitur ventositas ad eum modum est dicta, quo apud Avicennam et alios quosdam, item Barbaros, tumor est inflatio? Spinæ vero vocatus est tumor ex acuto sanguine, sine pulsatione constans qualem spinam appellavit Avicenna. Verum enimvero quid non contenti fumus eo, quod Razes aperte declaravit in opere omnia continente, dicens ventositatem hanc spinæ dictam propterea, quod ipsa os perforaretur. Nos autem, quæcunque sit barbari nominis vis, atque etymon, ossis circa articulum in pueris abcessum, græco verborum complexu *Pædarthrocace*, quasi puerorum ad articulos malum, inscribi volumus.

Severinus de pædarthrocace, p. 337.

† Porro Ventositatem spinæ reliquimus Barbaris, Arabibus, et hisce populis, quibus est hec mali fortassis endemion; apud nostros equidem incertus sum, an aliquando se prodiderit ejusmodi vitium, nisi fortasse quantum vulgaris ossis teredinis, aut abcessus a veteribus græcis cogniti speciem habet: longe autem alia res est abcessus ossis ad articulos, pueris nascens, quam rem tamen *Pandolphinus* cum ventosa spinæ confundit; hac una re potissimum arguendus, quod gratis et inconsulto (pace sit hominis dictum) plurimam doloris acerbiteriam imputat huic abcessui; qui nullum observatione nostra longa dolorem adfert, præterquam ubi perfectus et consummatus marcor ossis, putrido carnis adhæsu, paulatim fistulaverit.

Merklin, in his Annotations on *Pandolphinus*, has judiciously examined, and very consistently reconciled the Differences, which *Severinus* had started, as distinguishing what he calls *Pædarthrocace* from the *Spina Ventosa*; and concludes thus; Spinæ ergo ventositas, et *Pædarthrocace*, ut concludamus, non nisi nomine differunt, re autem verâ unum eundemque notant affectum. Vel si differunt, differunt ut genus et species, sive ut latius et strictius quid, ita ut Spinæ Ventositas, ceu genus & latius quid omnem quidem internam, sive a principio et interna causa proficiscentem ossium eariam seu corruptionem, *Pædarthrocace* vero, ceu species, et strictius quid non nisi illam a materia varicellarum vel recurrente, vel minus recte expulsa oriundam ossium corruptionem. Vid. *Merklini annotationes in Pandolphini*, cap. vii.

‡ Quoniam autem video nonnullos, quorum opinio fuit, hoc vitium ossibus secundario advenire, nimirum ab exteriori habitu, et a periosteæ membrana translatum; ostendam equidem hoc falso credi, ab ossibus verius proficisci vitium in circumscritas partes. Cap. V.

his Works some practical and pertinent Remarks occur worthy Notice.

He tells us, that, “ the Swellings affecting the Joints are
 “ of two Sorts, both of them made by Congestion, and in-
 “ crease gradually, yet differ, in that the one arises exter-
 “ nally upon the Tendons, and between them and the Skin,
 “ or between them and the Bone; the other internally within
 “ the Bone itself. That which arises externally affecteth
 “ the Ligaments and Tendons first, and sometimes relaxeth
 “ them to such a Degree that the Heads of the Joints fre-
 “ quently separate from one another, and the Member ema-
 “ ciates and grows useless. But for the most part the Hu-
 “ mour overmoistening the Ligaments and Tendons produceth
 “ a Weakness and Uneasiness in the Joint, raising a Tu-
 “ mour externally, and in Progress the Membranes and
 “ Bones are corroded by Reason of the Acidity of the Hu-
 “ mour: Yet it is much hastened, if upon a Supposition
 “ of a Dislocation they consult the Bone-fetters *.”

No Description can more justly particularize many States of the Disorder than this; so that his Conciseness seems to have been a considerable Loss to the medical World: Since from the great Resort of strumous Patients (amongst whom this Complaint is most prevalent) for the Royal Touch to *Charles the Second*, to whom he was Surgeon, and his extensive Practice, he must have been capable of handling this Subject in an instructive and masterly Manner.

WISEMAN then thus fixes a Species of the Evil in the Teguments of the Joint, and relates the Affection on the

* *Wise's* Chirurgical Treatises, Chap. IV.

Parts immediately forming the Articulation, as produced by a continued or increased State of the morbid Disposition of the Parts above it: To this he here specifies no particular Name, but produces it merely as a Symptom of the Evil; though afterwards in his Observations he frequently mentions White-Swelling as the distinguishing Character of the Complaint when it affects the Joint itself. But this Term he likewise makes use of in many other Places, as a White-Swelling *between the Eyebrows, White-Swelling in his right Elbow, on the right Side of the Rotula, &c. &c.* so that his Intention was undoubtedly only to signify a Tumour without any Alteration of the natural Colour of the Part.

TURNER *, who succeeded him, expressly mentions the White-Swelling of the Joints as one of the most stubborn Productions of the strumous Disease; and though, in the Margin, he adds, vulgarly called so, he adopts a Title, which has ever since, among the *English*, been generally made use of.

HE differs but little from *Wifeman*: “ This Tumour, says he, “ is ever doubtful, since there is great Difficulty to “ disperse it, very hard to keep it at a Stand, and if an Abscess ensues, as great Danger of a Caries at the Bottom, “ rotten Ligaments, fistulous Ulcers, and in the Conclusion “ a secondary or symptomatical Consumption, at best a stiff “ and useless Joint.” He afterwards adds, “ As a further “ Guide in the Way of a Diagnostic there are usually some “ of the other strumous Symptoms attending, as sore Eyes, “ swelled Lips, Glands about the Neck, or under the Chin,

* Surgery.

“ or the Parents have been subject to the same Distempers, and entailed it thus upon their Issue.”

WE do not however always find other stumous Symptoms attending, since the Obstruction may as well be formed in the smaller Vessels of the Ligaments and Cartilages as in those of the Eyes, Lips, or Glands; and many Instances have fallen under my Inspection where the Patient has appeared healthy and free from every other morbid Taint, but in the diseased Joint. Indeed *Turner* himself seems rather sensible of this, and therefore adds, “ But if its Rise were, first of all, from some Strain or Bruise, the greater Caution is required in forming a right Judgment.”

MONRO *, *Sympton* *, and *Freke* †, have given us some few Remarks well worth our Observation, and lately *Reimarus* ‡ published the Effects he had observed from this terrible Disease, during his Attendance at *St. George's* Hospital. These are the principal Authors worth Notice that I have met with. It were needless to remark upon every single Case relative to this Subject, that perhaps might be met with in different Authors, who not considering the Disease with sufficient Attention, have confounded it with other Complaints, and given it what Names they thought proper, as Anchylosis, Sarcoma, Oedema, Tumor flatulentus, Ganglion, Exostosis, &c.

* In the Medical Essays, Vol. IV. Art. 18 and 19.

† Art of Healing.

‡ Dissertat. Inaugural. de fungis articularum.

SECTION II.

I. **T**HEY who are afflicted with this Disease complain, in its earliest State, of a troublesome Sensation or dull Pain on moving the Knee, attended with a Debility, which frequently makes them falter in walking. In some it comes on without any apparent Difference in the Size of the Joint, but most commonly with a puffy Enlargement on each Side of the Patella, as well as with an emphysematous or crackly Feel just above the Tuberosity of the Tibia, where the Ligament of the Patella is inserted. This however is seldom sufficiently regarded as they find very little immediate Inconvenience from it, if, as is frequently the Case, they give it rest under the Notion of its being Rheumatic. Many indeed walk about and follow their usual Business without complaining, 'till the Tendons forming the Hamstrings incline to a State of Rigidity, and will not suffer the Heel to touch the Ground. In others, more especially when it arises from a Translocation of Matter, it comes on with much Pain, which sometimes will submit to a proper Treatment, and for a Time almost entirely disappear. In this State it will remain a longer or shorter Time according to the Patient's Habit of Body: But it will always make the quickest Advances in those, whose Constitution is tainted with the Scrophula. A Fall or Bruise upon the Part has many Times forwarded the Complaints, and in some has first occasioned the Enlargement of the Knee to be observed.

II. In Process of Time the Joint in general increases in Size, but still retains its natural Colour, and is attended with a
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darting pungent Pain, which seems to lie deep, or as is usually expressed, in the Middle of the Bone *. The Joint becomes tightened and confined, so that its Flexion is considerably injured, and a Stiffness in its Motion ensues, that renders walking quite troublesome. The inguinal Glands are frequently enlarged and painful: The Thigh above, and the Leg below, diminish in Flesh, and in some are much emaciated. In this State the Tendons stiffen and grow rigid, the Knee is bent forward, and the Heel with much Pain brought to the Ground; this Contraction is rather confirmed by the Patient's Endeavour to ease himself by bearing only on the fore Part of the Foot. It is frequently to be observed that the internal Side of the Joint is enlarged considerably, when the external retains its natural Size: In such Cases, the Patient under a mistaken Notion of Relief inclines the Joint inwards as much as possible, so that it becomes considerably twisted and distorted, and the Foot, instead of its natural, has an oblique Motion. If the Patient attempts to walk but a little, the Pain is increased, as well as very frequently by the Warmth of the Bed.

III. WHEN it arrives to this State, the Disorder gains Ground daily, and the Patient labours through a continued Scene of Torture and Misery: The Integuments which were, before loose, are now fixed, and appear soft and pappy, tho'

* What *Galen* has remarked upon another Occasion seems very applicable here. *Dolet vero sæpenumero hoc modo etiam superficies, et membranæ in media carne contentæ, quæ dilaniantes quoque dolores inferunt. Eos, vero, qui a partibus ossa circumdantibus dependent, tundentes comperies, ac si in ossibus consisterent. Sed quod membranarum, quæ ossibus adjacent, dolores, et profundi sunt, id est, in intimo corpore sensum excitantes, et ossium ipsorum veluti dolentium inducunt imaginem, haudquaquam mirandum est. Nam si quamplurimis osteocopi nominantur, et frequentius ab exercitationibus oboriuntur, quamvis interdum vel ob frigus vel plenitudinem.*

without Fluctuation. The Joint becomes more stiff, and the Limb more weighty. The Pain increases, is constant, and almost excruciating upon the least Roughness or Violence used externally.

By a nice and careful Examination in touching the Joint, a Gritting may be perceived, in which State the Cartilages are destroyed, and the Bones bare, if not carious. The Integuments become more indurated, and in general resist the Touch: But in some Instances, where the Disease has made a very rapid Progress, especially in younger Subjects, a Fluid may be perceived running through the Joint, in which Case the Patella still retains some small Motion: In these the surrounding Parts are not so much indurated, though the Joint is nearly as much injured as in the other Cases.

If the Tumour bursts of itself, or is opened by the Surgeon, a thin, crude, and ichorous Matter is commonly discharged, somewhat resembling Curds and Whey, in different Subjects in different Quantities. If the Inflammation has been great, the Matter is thick, glairy, highly fœtid, and offensive, and for the most part of a dark yellow Colour tinged with black. The Fever, which has some Time raged, yields to no Medicine, and the Patient has a pallid Countenance frequently flushed, and begins to sink under a dissolving Hæctic, or a colliquative Diarrhœa, unless rescued by a timely Amputation.

UPON examining the Knee either after Death or Amputation, we find the Integuments very much thickened, and the Cellular Membrane, instead of that Looseness and Ductility, its natural Property, and which allows the Skin to roll so freely over the Joint, is become a compact Substance,

stance, most frequently full of a thick, gelatinous Humour. In old inveterate Cases, these external Parts are in general so altered from their natural Appearance, and blended and confounded together, that it is almost impossible to distinguish them from each other. The Ligaments are so much thickened and swoln, that they appear another Substance, and the Resistance they afford through such a diseased Medium, as the Cellular Membrane is now become, is sufficient to impose an Opinion that the Bone is very considerably enlarged, when it really is not so in the least. In some, where the Tumour is large and extending up the Thigh, a Fluid may be readily perceived, which if discharged by Incision previous to Amputation, in order to examine how high the Femur is affected, in no Degree reduces the Tumour about the Joint, though the Parts above may subside considerably. This indeed is sometimes highly necessary before the Limb is taken off, in order to ascertain the State of the Muscles, which are often so injured by the acrid Matter, as to be getting into a very putrid State.

THE BONES of the Joint are affected variously. In some, where the Pain has been greatest, and though confined to the Knee alone, has so far reduced the Patient, that an immediate Amputation is necessary to save Life, the Joint has been found very little, if at all, diseased. This appears in some Respect like the “ one Case of a White-Swelling, that according to *Che-* “ *selden* is amazing, where the Pain is so great that we are “ forced to take off the Limb, and yet neither find upon dis- “ section the Ligaments or Glands diseased, nor Matter in “ the Joint, nor the Bones carious, or any diseased Appear- “ ance, except that the Heads of the Bones are a little larger

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“ and softer.” A Case exactly circumstanced with this described by *Chefelden* has never fallen under my Inspection. In two Patients, where the Joint was very little enlarged, and where the Pain was so very excruciating as to determine the Necessity of Amputation, I observed, though the Cavity of the Joint was not in the least diseased, yet the Ligaments had lost their natural Firmness and Appearance.

In other Instances, when a purulent Fluid has been discharged by any Opening, whether by Ulcer or Incision, the Bones have generally been found injured; the Cartilages, that cover the Extremities of the Femur and Tibia, as well as the semilunar Cartilages, have been dissolved into a Mucus, and the bony Fibres of the Epiphysis might be seen shooting through it: The lower Extremity of the Femur, near where it is joined with the Epiphysis, soft, red, and as it were turgid with a sanious Humour, which by Pressure might be readily forced out. The external Plate or Cortex of the Bone might be easily separated in small Bits from its internal Cancelli, containing in such Places a Medulla inclining to a brown Colour.

As the Fibula is no ways concerned in forming the Joint, the Tibia generally suffers alone, so that when the Cartilage, which covers its Extremity in the Joint, is destroyed, the bony Cancelli of the Epiphysis are gradually corrupted and rendered carious. Sometimes when the Disease advances but slowly, it preys upon the Ligaments without coming to Suppuration within the Joint, in which Case by destroying that thin ligamentous Stratum, which may commonly be seen 'till the Age of fifteen or sixteen, dividing, as it were, the Body of the Tibia from its Epiphysis, it occasions that Separation
of

of the "Heads of the Joints" remarked by *Wifeman*. If the Epiphysis has much suffered, we often find a kind of bony Incrustation on the Surface of the Tibia, where the Periosteum has been injured and separated: So that at different Times we may see the Bones affected in the same Manner as they are upon other Occasions from a corroding, acrimonious Ichor.

SECTION III.

AT whatever Period we examine this Complaint, the Ligaments seem first and principally diseased: Hence it is necessary to inquire how they, as well as the other Parts which assist in composing and strengthening the Joint, are affected.

A minute Examination into the Manner how these Ligaments are spread over the Joint, informs us, that they may be divided into three Coats, or Lamellæ; the external, reaching some Way above and below the Articulation; the second, arising a little below the outer Coat, and inserted above it; and the third, or internal, which is the true Capsula, immediately investing and extending itself over the Cartilages, forming a complete Cyft, as the Pericardium to the Heart, and serving to contain the Synovia for the immediate Service of the Articulation.

THERE are two Species of Ligaments differing much from each other in Strength and Texture. Those under our present Consideration, and which may properly be called the Articular Ligaments, possess the middle State between a Membrane and a Cartilage, and are of a whitish or pearl Colour, dense, compact, strong, and very little if at all elastic. They are made up of fibrous Layers or Strata, which with Difficulty may be raised from each other. The Vessels, which serve for their Nourishment, are most of them too small to admit red Blood, and therefore unless a cutaneous Vessel be divided, when any Wound is inflicted upon these Parts, very little Hemorrhage succeeds.

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THE Antients seem to have considered the Joints as liable to Complaints chiefly from Defluxions, which they supposed these Parts, from a natural Coldness and Imbecility, incapable of resisting. This Opinion indeed they extended to other Parts of a similar Appearance and Structure, which they were probably led to from observing how sparingly they were furnished with Vessels carrying red Blood. The Industry of the Moderns have explained this Matter, and set it in another and clearer Light.

THE different Degree of Density and Strength of the Solids entirely depends upon the closer Application of their composing Fibres. Hence the Vessels entering the Substance of such Parts are smaller in proportion to their Compactness, least by dividing or keeping the Fibres too much asunder, they might diminish the Degree of Strength requisite for the Purpose they were intended for. Hence in the Muscles the large Blood-Vessels are very conspicuous, in the Tendons and Ligaments much less so, and in the Cartilages and Bones scarcely at all, unless filled by coloured Injections. Yet all these Parts, however different in Appearance, receive their Nourishment and Support from their respective Vessels, and are thereby enabled in a natural and healthful State to perform their proper Office.

THAT the Vessels may act on their contained Fluids, and continue the Circulation regularly, they are supplied with a Degree of Strength, which when increased or diminished, is most commonly productive of bad Consequences. If they have lost their Force, and are too much relaxed, the Fluids are not duly propelled through them, and losing their proper consistence for Want of the due and usual Re-action of the Solids,

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form Obstructions more or less obstinate, as such Parts sooner or later recover themselves. Such Effects are frequently seen in the Ligaments and Tendons about the Joints, from Contusions, Strains, or violent Extensions, when not being able to act properly, and to assist in the Distribution of their Juices, they suffer such a Repletion as to confine the Motion of the Joint, and in Time to destroy it totally.

OBSTRUCTIONS thus formed receive a continual Increase, and as the Tumour enlarges from a Collection of the more viscid Particles, the Oeconomy of the neighbouring Parts is affected, and the Circulation through the smaller System of Vessels very imperfectly carried on.

As the Swelling is formed by a Superabundance of Humours in these Vessels, it still preserves the natural Colour of the Part, and to whatever Size it grows, will not retain the Impression of a Finger, unless there be an Extravasation in the surrounding Cellular Membrane. Hence our Intentions of Cure must be directed by the State of the Part, whether the Vessels are obstructed only, or their Fluids extravasated.

IN the Cure of Obstructions wherever seated, the most desirable Means is, that by Resolution; but for this the Action of the Vessels must assist in attenuating the inspissated Humours, and afterwards in propelling them onwards from the Place of their Stagnation into the Rout of the Circulation. In the Complaint under our present Consideration, a careful Practitioner may observe a very necessary Distinction. In the early or first State, if, when the Puffiness of the Ligaments shew they occupy a greater Space than natural, and when upon bending the Knee, the lateral Ligaments are
considerably

considerably protruded, we find a resisting Firmness still remaining, the obstructing Matter will most commonly yield to proper Discutients : For as the Parts above are then scarcely, if at all, injured, our Applications for that Purpose will not be prevented taking Place, as at other Times when the Disease is of longer standing, and the Medium more diseased. At this Period, we may succeed with Vinegar Fomentations, quickened with Sal Armoniac, and by rubbing the Joint afterwards well with soft Soap, lowered as Occasion may require, and the Skin of the Patient will bear. This Method will be found upon all Occasions much more efficacious than Mercurials, which has been by many so much depended on. Vomits too at this Time have proved serviceable.

BUT when the Integuments begin to thicken, and the Parts around the Joint to increase in Size ; when the Motion of the Patella is much confined and diminished, and the Tendons forming the Hamstrings are quite rigid, hard, and much contracted, we have little Time to lose. Here we must fly to more powerful Methods, and by every Means attempt to increase the Perspiration of the Part. If this should not succeed Caustics properly applied are often of great Service by the Discharge they promote. *Le Dran's* Method * too may be made use of, as it has been found upon some Occasions very beneficial. But though we may succeed in reducing the Joint to its natural Size, yet we are frequently disappointed in our Expectations of a speedy Cure by a great Debility of the Joint, which will demand our utmost Skill to brace up and strengthen.

* See *Le Dran's* Obs. 93 and 94 ; also *Commercium Literarium*, ann. 1732.

SHOULD the Disease be further advanced, and the stagnated Humours so far depraved as by their Acrimony to bring on an Inflammation, then the most dangerous Consequences must be expected.*.

I before mentioned the Necessity of examining, whether the Tumor round the Joint be formed by extravasated Humours. This will make a considerable Difference in the Method of Cure, and therefore deserves a proper Consideration.

WITHIN the Bursa Ligament, or Capsula of the Joint, we find the Cartilaginous Extremities of the Bones, supplied with a lubricating Fluid, that facilitates the Motions of the Joint, and prevents the ill Effects which would ensue from their Attrition without such a Medium. In a similar Manner are the Ligaments and tendinous Expansions defended from those Accidents which would be the inevitable Consequence of their necessary Motion, when the Body is in Action. They are therefore supplied with a viscous Lymph from Glands, which lubricate and preserve them in due Order.

THIS Secretion is liable to several Alterations from its natural State, but is most often redundant from a Rupture and excessive Excretion from the lymphatic Vessels, or a diminished Power in the Action of the Absorbents; as the Causes therefore, which give Rise to the above-mentioned Redundancies, are frequently local, such Extravasations are often to be met with about the Knee from Falls, Contusions, Distortions, and too great Extensions.

THE extravasated Fluids may therefore insinuate themselves between the lateral Ligaments and Capsula of the

* Vid. Chap. IV.

Knee *, the posterior Ligament and Capsula—the posterior Ligament and Popliteus †—the circular, great, and lateral Ligaments of the Patella ‡—upon and for some Space round the Patella—the thin Expansion of the Fascia Lata—and the common Aponeurosis of the Rectus, Vasti, and Crureus **—When these Tumors are recent and small, their Contents are sometimes absorbed, and the same happy Effects are often brought about by proper topical, as well as internal Medicines; but being retained for some Time, the finer Parts only are taken up, and what remains acquires the Consistence of the White of an Egg: But in this State, and in still higher Degrees of Inspissation, it does not contract a fœtid Smell, or taste in the least acrid.

Thus Extravasations may be formed, not only in one, but in many different Places, and may extend themselves, 'till bursting, they become one common Tumor: Sometimes they remain in distinct Cavities, between different Laminæ, as is usual in other encysted Dropsies: But in general it is to be observed, that whether the Tumor be large or small,

* As these are connected closely with the Burfal, where that is to the Cartilage, the Contents will be included above, below, or in both these Spaces.—This Effect may be seen to follow Strains or Distortions of the Joint.

† In these Spaces, more particularly the last, there are great Number of small Glands mixed with some Particles of Fat, so that the Contents of Tumors in this Part are not always of that uniform, gelatinous Kind, as in most others situated about the Knee, but are frequently steatomatous.

‡ This is most conspicuous on each Side the great Ligaments, there being the least Resistance owing to the lateral diverging from it on each Side to the Head of the Tibia.

** The most extensive Extravasation, and largest Tumor of this Kind, to which the Knee is subject, is that which generally begins above the Joint between the aponeurotic Expansions of the Rectus, Vasti, and Crureus: In its Increase spreading every Way on the anterior Part of the Articulation, and reaching, though unequally, even below the Patella. This has been denominated the Dropsy of these Muscles by Mr. Gooch, and is a Case not at all uncommon.

its Contents are included in one Cavity, and the contained Fluid may for the most part be discharged by one Incision.

To this Disease many Authors have fixed the Title of Fungus Articulorum. *Purmannus* * describes such Tumors as “ a Kind of Excrecence, like the Fungi on Trees. They “ resist the Impression of the Fingers, never shine, cause “ little Pain, and yet in Time grow so big that they hinder the Motion of the Joint, and make the Patient very “ lame or a Cripple.” What he afterwards adds, fixes it a true Dropsy, though, according to what had occurred to him, chiefly of the encysted Kind.

WIDMANNUS † still further confirms this, when in treating of the Diseases of the Knee, he particularizes the Nature of the Fungus Articulorum thus: “ Variæ eorundem sunt “ differentiæ, alii enim majores, alii minores, alii tenuioris “ substantiæ sunt, alii crassioris. In plerisque materia vitiosa, “ quæ ipsos excitat, sub cute in tunica adiposa et ligamento “ annulari hæere videtur, et tunc totum articulum ambit; in “ quibusdam vero in peculiari tantum genu parte, quasi in sacculo sive folliculo continetur; illi vero in quibus humores “ noxii ipso articulo inhæreant, hydrops articulorum, & speciatim in genu, hydrops genu, nominari solent. Præterea “ adhuc sciendum, hydropem genu totum semper articulum “ distendere, fungum vero uni sæpe tantum lateri adhærere.”

HEISTER ‡, who seems to have *Purmannus* chiefly in his Eye **, tells us, that, if it cannot be dispersed by the usual proper

* Chirurgia Curiosa.
& Fungis Articulorum.

† Haller. Disputat. Chirurgic.

‡ De Hydrop.

** *Purmannus*, after recommending some Medicines for its Discussion, tells us, if they are unsuccessful, “ the next Way of curing this Tumor is by opening it with a Lancet,

proper Applications, it must be opened at the most convenient and depending Part: " Sic enim serum illud stagnans, " si unico in cavo collectum, protinus corrumpit, vel si in " diversis, præterlapso aliquot dierum spatio sensim sensimque " affluit." But that the Fluid may be discharged the more expeditiously and completely, he adds, " Chirurgus ipsum " tumorem digitis gnaviter deprimat, injectaque superius fascia, ne cedere faciliè possit, contineat. Namque isto modo " non commodissima solum ad incidendum pars in conspectum prodit, sed ipsum quoque serum, facto foramine, " promptius effluit; imo vero ad instar sanguinis in venæsectionibus, aut lymphæ in hydroceles vel hydropis ascitis " incisione prorumpit."

THIS Complaint then, undoubtedly dropical, has been too frequently confounded with, and mistaken for, the White-Swelling, to which, though it may sometimes bear a similar Appearance, yet will be found in general to differ considerably.

FROM the Resistance of the Tumor, and inspissated State of the contained Fluid, a Fluctuation is not to be so readily

Lancet, or Corrosive, in the most convenient Place that Nature and Art indicate; but this must never be attempted 'till you despair of curing it any other Way. The Place generally chosen is about a Finger's Breadth below the Patella, where the Water may be drawn out with little Trouble; nor will it hinder the Patient in going; not to mention the Conveniency in applying Bandages and Medicines, which will stick better in that Part than on any other. Instead of a Lancet they generally used a Corrosive made of Silver and Aqua Fortis, and applied no bigger than a small Pea, that the Orifice may not be too large, and the Water run out at once, nor the Air have too free an Access to the Part, for it is better to stay two or three Days longer, and let it out by Degrees, lest you injure the Musculus Plantaris and Solearis, and cause other ill Accidents. When you have the first Time drawn out as much Water as you think convenient, put a Tent into the Wound big enough to fill it up, that no Water may go out but when you please. To the Knee apply a good defensive Plaster, and over the Wound a good Stiptic, 'till all the Liquor is exhausted, and then heal it up again." Though this Method of Treatment cannot be approved by modern Surgery, I have given the Extract to shew his Notions of the Disease.

Chirurgia Curiosa, Lib. III. Chap. 9.

felt even in the more early Times, as in dropſical Collections elſewhere; yet though the Articulation and lower Part of the Thigh is enlarged to three Times the natural Size, we ſhall almoſt always find in its early State the Patella much more moveable than in the White-Swelling, the Motion of the Joint much leſs confined, and the Patient ſuffering very little, but when he attempts to kneel or bend his Leg backwards.

But if it remains for any conſiderable Time without being ſucceſsfully treated, the Fluid has been found to macerate, thicken, and at laſt deſtroy the Texture of the Parts by which it has been confined.

As the one Complaint therefore originally proceeds from a Diſeaſe of the Subſtance of the Ligaments through an Infarction of their Veſſels, and the other from an Extravaſation of Lymph either general or partial, the diſtinct Knowledge of each becomes abſolutely requiſite, as the Methods to be attempted for their Relief muſt frequently ſo widely differ. Proper Diſcutients, as aromatic Fumes, volatile Liniments, Frictions, Brandy and Vinegar*, with proper Bandages, will frequently prevail againſt both in a recent State. If ſuch Attempts prove ineffectual, Extravaſations of every Kind may be opened with Safety, and the higheſt Probability of Succeſs, provided the Fluid has not lain long enough to contaminate and deſtroy the ſurrounding Parts; whereas in an obſtructed State

* It has lately been very fashionable to apply Blitters upon almoſt every Enlargement of the Knee, from the great Benefit which has ſometimes been found from them in ſuch Complaints. But this indifcriminate Application is by no Means proper, and may, on ſome Occaſions, be attended with bad Conſequences by its Irritation.

Where the Tumor is formed from a lymphous Extravaſation in the Cellular Membrane, they may be made uſe of with great Succeſs, and a proper Direction in this Reſpect will be when the Patella ſeems buried in the Swelling. For where the Tumor is occaſioned by diſeaſed Ligaments, there the Patella lies almoſt immediately under the Skin, as in a natural State.

of the vascular System of the Ligaments, an Incision will ever prove ineffectual, if not productive of the most terrible Consequences. Of the former, several Instances might be produced, where the Cures were completed by proper Incisions, and their Union afterwards secured by Compress and Bandage. Mr. *Gooch's* Cases, and Method of Cure in this Respect, deserve particular Notice.

BUT that we may not doubt of Success, even when this Disease has been of long standing, the following Instance is a remarkable Proof, communicated to me by Mr. *Watson* *, an ingenious and eminent Surgeon, in *Devonshire-Square, London*, in whose Words I shall beg Leave to offer it.

“ MR. J. E. Mariner, in *Cross-Street, Moorfields*, thirty-four Years of Age, received a Fall in 1754 on the internal Side of his left Knee, which swelled exceedingly with considerable Pain : By common Applications the latter was quickly relieved, but the Tumor continued rather to encrease. Some Months afterwards further Advice was called in, who were with the former of Opinion, that it was a White-Swelling, on which Account Amputation was determined on. The Night preceding the intended Operation, the Patient having felt, and fixed on, a small, moveable, hard Substance, about the Bigness of a common Pea, boldly cut upon it with a Penknife, and had almost extracted it, when a Person coming into the Room, prevented the Completion of his Design, by giving him a severe Stroke on his Arm. A full Pint however of a glairy viscid Fluid was discharged, adhering together

* To this Gentleman I must confess myself indebted for many judicious Observations on this Subject.

in one entire Mass. The Swelling upon this disappeared, and returning no more, the Operation was no longer thought of. He then engaged himself in his Majesty's Service at Sea, where he continued for several Years; when he was obliged to quit his Employment, on account of great Inconveniences he sustained from the Movement of the aforementioned Substance, which was now greatly encreased in Size. *August 24, 1762*, I first examined his Disorder, when I discovered two hard moveable Bodies, unequally flat and round, one the Breadth of a Six-pence, the other near the Size of a Shilling, which in the different Flexures of the Joint, moved from one Part to another with the greatest Velocity, and that to a considerable Distance, *viz.* from the Patella five or six Inches up the Thigh, two Inches below that Bone, and about three on each Side. These Motions gave him great Pain, frequently causing him to fall down, by which he was often much hurt, and sometimes his Life even endangered. Having fixed one of the Substances, I extracted it through an Incision I made upon it, and then, tho' not without great Difficulty, found the lesser, and by gradual Compression brought it to the Orifice, through which it flew to some Distance. The Cyst in which they were contained was thick, white, and hard; its Inside smooth, and lined with a slippery Moisture, with which the Bodies were also covered: These were about the Size above mentioned, white, unequal, and hard, and to the Eye appeared like the external Surface of the cortical Part of the Brain: They are now less and more yellow than at first, when they resembled the White of an Egg coagulated; to which both in the Nature of the Fluid, and this Change, there appears a great Similarity.

Similarity *. There was no Liquor contained in the Cavity, or discharged by the Incision, nor was it attended or followed by any Pain or Inflammation worth mentioning; but the next Morning, the whole Cyst was greatly distended by the same gelatinous Jelly, as noticed in the first Stage of his Disorder. This gave me an Opportunity to examine the Appearance and Contents of the largest Tumour of the Kind that I had ever before seen. Its Projection was chiefly on the anterior and lateral Part of the Thigh, Knee, and Leg: The Circumference of the Thigh above the Patella was equal to

* *Mourre* to account for a similar Appearance in the Case related by Dr. *Symphon* in the Medical Essays, mentions a Substance which he found within the Articulation of the right Knee, of the Shape and Size of a small *Turkey-Bean*. When cut through it had only a thin, external, firm, Plate, being composed within of Cells which were full of Oil. Upon a careful Examination, a Part of the Cartilage of the Tibia of the same Shape with the before-mentioned Substance was wanting. It appears a little singular how so small a Portion could be separated from the Cartilage, which is never found in so brittle a State, as to be liable to suffer in that Manner. But in the Instance mentioned by Dr. *Symphon*, the Patient had never suffered any injurious Violence on his Knee, and therefore it can by no means be made a parallel Case to account for such an Appearance.

Such Substances should therefore seem to have been formed by an Inspissation of the grosser Parts of the Fluid in which they are generally found, compressed and indurated into their Shape by the Action of the Part. This appears rather confirmed by the Circumstances of a Case related by *Monf. Du Fouart*, whose Opinion too is well worth reciting. "The second Circumstance, which merits our Attention, relates to a boney Concretion, or rather a white and friable Matter, which I found in the Middle of the Tumour. This did not in the least adhere to the Bone, from which it was separated by Flesh, or Substance of the Tumour, which covered and surrounded it every where equally: What is principally to be observed in this Concretion is, that the Strata of the Matter which forms it are not a Composition truly solid, since the Parts of them are very friable, and may be separated almost as easily as the Parts of a calcined Bone. They do not even produce an uniform and continued Mass, since they are separated from each other by an Infinity of Pores on very sensible Interstices. In a Word, they do not form an organic Whole, since they only constitute a Congeries of irregular Laminæ, such as Congestion might have thrown together, without Vessels, without intermediate Fibres, Connection, Order, or Regularity. In short, they are only Juices so inspissated as to assume an apparently boney Consistence, and these Juices being at first poured from the open Mouths of the Vessels destined for their Conveyance, have afterwards united by the single Obstacle they found to their Diffusion, and have thus formed an irregular Assemblage, which has no other Form than what was prescribed to it by the greater or less Resistance which the Substance of the Tumour has opposed to the Extravasation of those same Humours." *Acad. de la Chirurgie.*

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any Part of that Member, the upper Part only excepted. This Tumour was extended over the Patella, but the Elevation was higher on each Side of that Bone, and then proceeded downwards unequally two or three Inches below the Patella. When I had done inspecting this Appearance, I squeezed the Fluid to near the Quantity of a Wine Quart through the Orifice, which was of the Consistence and Quality before mentioned. This sudden Collection and Evacuation was not attended with much Pain to the Patient. I then made an Attempt to close the Sides of this spacious Cavity by Compress and Bandage, leaving a free Passage thro' the Opening; notwithstanding which, on the next Morning, the Tumour returned, though somewhat less than before; the Wound was thickened and swoln, and the Discharge thereby prevented. I was then about to make a counter and more dependant Opening, but considering it as a recent Collection, and also knowing the happy Effects of discutient Methods in Instances of the like though smaller Kind, I resolved to heal the Incision, and make that Experiment, which I effected in about three Weeks; the Fluid was absorbed, and the Side of the Cavity united. The Patient has continued perfectly well from that Time, and is now returned to his former Station."

SECTION IV.

IN our present Subject we may observe, that at different Times the same Effects are produced on Parts of a similar Structure and Disposition : For whether an Abscess succeeds immediately from a Wound inflicted on the surrounding Parts of a Joint, or is produced by Length of Time, from less active Causes, as Contusions, Over-extensions, &c. we always find the Suppuration producing the same Consequences with the same Appearances. Of the latter we have already taken some Notice, and of the former we will here mention some Particulars, so far as they may afford us proper Notions of diseased Joints in general.

MODERN physiological Inquiries into the Nature of ligamentous and tendinous Parts have given Rise to an Opinion, that they are altogether insensible ; yet some cannot conceive, how a Part destitute of Feeling should be the Seat of remarkable Pain. However strange, or even paradoxical this may appear, it nevertheless under proper Restriction is a certain Fact. The Alteration, that the Oeconomy of every Part suffers, when injured or diseased, is best evidenced by the Effects, and it would be highly improper to confound different Principles together, and so ascribe to primary, what evidently arises from secondary Causes. Many an incised Wound has been inflicted on a Joint, that proved no otherwise troublesome at the Time of the Accident, than affording such a trifling Smart as in general attends even a slight Incision thro' the Skin ; and when the Wound in the external Skin, was united, and the Accident almost forgotten, the Patient has been attacked with

the most violent Pain and Inflammation with all their dreadful Consequences.

It is in general to be observed, that these bad Symptoms seldom come on 'till some few Days after the Accident, and almost always when the Wound has been neglected, or deemed so trifling as to deserve little Regard; the Patient therefore walks about as usual, and when he least expects it, is increasing the Danger of the Wound. This I could support by many Instances, where accidental Wounds far greater, and in Appearance much more dangerous, have terminated as speedily and as happily as could be wished, by confining the Patient to his Bed, and preventing an Inflammation by the proper antiphlogistic Remedies. In Parts of such a dense compact Texture as Tendons and Ligaments, an Inflammation advances but slowly, as they are so sparingly furnished with Blood-Vessels; but when once an Obstruction is formed in these Vessels, the Chance of Relief is by no Means equal to that when it happens in the more soft or fleshy Parts, because the rigid Fibres of the one will by no Means give way to the Distension of the Vessels, the certain Effects of an Inflammation, which the other from its soft and yielding State more readily submits to.

AN healthy, robust, young Countryman in cutting some Sticks, unfortunately missed his Blow, and the Hatchet glancing on his Knee, wounded the Ligament on the right Side of the Patella. The Wound was attended with so little Pain at the Time of the Accident, that he hardly took Notice of it, and went about his Business as usual. Some Days after it began to pain him much, an Inflammation came on, and the Joint was so troublesome, that he applied for Relief

to

to a neighbouring Woman, the usual Doctress of the Country. Her Applications did not relieve him in the least, but, on the contrary, Signs of Suppuration appeared; and when I first saw him with Mr. *Timbrell*, the Certainty of Matter, though deep seated, induced us to open the Abscess. Upon making a deep Incision a crude, indigested Matter, like Curds and Whey, was discharged in a considerable Quantity; and, upon examining the Part afterwards, we found the Ligaments much injured, and the Articulation itself diseased. In a few Days a small Swelling appeared below the Patella, which, that it might afford a more efficacious, as the more depending Drain, was encouraged by Poultices, and opened accordingly. Spirituous Injections were syringed through the Joint, and every Method attempted to prevent a Lodgement of Matter, but all to no Purpose. His Thigh became vastly tumefied, and his Leg very oedematous, even to the Extremities of his Toes. In short, every Endeavour was ineffectual, an Hectic Fever came on, and he died about the fourth Week after the Accident.

UPON examining the Joint, the Ligaments were very much thickened and diseased; and the Cartilages both of the Patella and Extremities of the Femur and Tibia entirely destroyed.

W. B. about thirteen Years of Age, endeavouring to lop off the Bough of a Tree with a Hatchet, wounded his Knee on the internal Condyle of the left Thigh. Immediate Care was taken of it, and the Boy directed to keep the Leg quiet; but his unruly Disposition would not suffer him to follow this necessary Advice, and finding little or no Inconvenience from it, he ran about among his Playfellows as usual. About

the eighth Day his Knee grew very painful, was considerably swollen, and appeared very much inflamed: the Boy grew feverish, was attacked with Shiverings, and every Symptom of a forming Abscess, which, being soon completed, was opened, and a considerable Quantity of Matter discharged. In a few Days the Wound threw out such a Fungus, that no Application would restrain; and though the greatest Care was taken by keeping the Lips of the Wound apart, to afford a proper Vent for the Discharge, it signified but little, and we were necessitated to make an Opening on the Outside of the Knee, as well as in the Ham, where the Matter seemed most inclined to pass off. But this by no Means answered our Expectations: The Integuments on the Top of the Joint became so much tumefied and thickened that we could scarcely feel the Patella; the Joint grew so painful that the least Motion of his Leg hurt him excessively, and a Tumour forming on the Head of the Tibia, which in a few Days was opened, gave us an Opportunity of finding that the Ligaments were destroyed, and that this last Collection of Matter came from the Joint. The Leg now became very oedematous, which made us suspect, that the Matter insinuating itself between the Gastrocnemii Muscles was forming a Collection there, and that the only probable Means of saving him was the Amputation of the Limb.

THE Hesitation of his Friends upon this Point produced a Delay of some Days, in which Time he grew very feverish, hectic Symptoms came on, and his Case appeared desperate.

THE Boy himself now desired to undergo the Operation. I accordingly performed it about the seventh Week after

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the Accident. In a few Days he was visibly altered for the better, his Appetite and healthy Countenance returned, and the Wound healed so kindly that it was cicatrized about the End of the fourth Month.

UPON examining the Knee, the Integuments were found considerably thickened and tumefied, and the Cellular Membrane, where it had not suffered the usual Effects of Suppuration, was infarcted with a thick, gelatinous Humour. The Ligaments were very much enlarged in their Substance, but having lost their usual Compactness, were become soft and pappy, and in two or three Places were opened into the Joint. The Cartilages at several Points were softened into a Mucus, and in other Places entirely eroded and destroyed, so as to lay bare and expose the cancellated Substance of the Heads of the Bones. Between the Gastrocnemius externus and internus appeared a large Cavity, which had received a considerable Quantity of Matter from the Joint.

THUS we may observe almost every Inflammation of the Ligaments to terminate, which cannot be prevented coming to Suppuration, since the natural Tension and compact Texture of such membranous Parts can neither afford a kind Pus, or suffer that Degree of Deterfion, which is necessary for the proper Healing and Recovery of such Parts thus diseased. Hence, though the Surgeon attempts the Relief of his Patient, when Matter is formed between these membranous and ligamentous Expansions, even by a well directed Opening, he very rarely succeeds *, since the Obstruc-
tions

* Though all Abscesses are seated in the Cellular Membrane, a proper Distinction is to be made between those formed in the Cellular Membrane under the Integuments, and

tions formed in these Parts are seldom resolved by such imperfect Suppurations; and the Wound, continually moistened by extravasated Juices, throws out such loose and flaccid Granulations as form a very troublesome Fungus, which cannot be properly subdued. The Matter therefore not being duly discharged, is diverted to another Part, where being absorbed and taken into the Constitution, it is productive of the most dangerous Hætic, with all its dreadful Consequences; or, insinuating itself through the Cellular Membrane, is frequently deposited at some little Distance from the Articulation †; where being opened, the Patient is wasted, and gradually destroyed by an incurable Fistula.

IN the same Manner may we observe the White-Swelling to terminate, when it arrives to a State of Suppuration. Sufficient Reason have we therefore to be alarmed at the dangerous Situation of our Patient, when an Inflammation comes on, attended with a Fever, sharp Pains through the Joint, and Shiverings, the almost general Attendant, and in this Case the certain Criterion, of a forming Abscess *.

FREQUENTLY when this Complaint has been negligently treated, or from the Mildness of its Attack entirely disre-

and those formed between the tendinous and ligamentous Expansions: A careful Observer will in general find that those extraordinary Cures in this Part, which we every now and then hear so much boasted of, are no more than ill-conditioned Abscesses of the former Kind.

† As such Patients are constantly obliged to keep their Legs upon a Level with their Bodies, the Abscess frequently breaks in the Ham; but not 'till the Matter has formed Sinusses down the Leg, in the Cellular Membrane upon, and sometimes between the Gastrocnemii Muscles. This I have several Times observed, and been able to press out a considerable Quantity of Matter every dressing, unless it was prevented burrowing, by the Application of a Compress and Bandage.

* A critical Deposition on the Joints is frequently productive of a similar Event, and many Women in particular, as Doctor *Simson* has observed (in the Medical Essays) have contracted it under the Diary Fever they are subject to in Child-bed. Of this a remarkable Case has lately fallen under my Care, where the Patient was saved by a timely Amputation.

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ed, the Ligaments, tendinous Expansions, and Cellular Membrane, become so relaxed, and their Texture dissolved, that their original Structure and Appearance are at last entirely altered and destroyed, and they appear, as I before observed, one general confused, and pulpy Mass, while the Bufal Ligament, or immediate Capsula of the Joint, being but slightly affected, even in this State preserves the Parts within its Cavity sound, and free from the surrounding Contamination †. Under these Circumstances, the Patient frequently lingers many Years. But when the Joint becomes affected, its vitiated Juices being mixed with the Liquor secreted from the mucilaginous Glands within the Joint, a crude, indigested Matter is formed and collected there in a considerable Quantity, in every Respect answering that Species of Sanies, which *Celsus* has denominated Melicera ‡, and *Hildanus* treated of in his Chapter de Hydrarthro *.

FROM the Extension of the diseased Ligaments by the Quantity of collected Fluid, the Patient suffers continual Pain; a constant Irritation is produced by the Acrimony of the ichorous Matter, an Inflammation brought on, which

† 'Till the Disease arrives at this Period, the Joint, though it cannot obey the voluntary Action of the Muscles, destined for its Motion in a natural State, may by the Hands of an Assistant be found to retain a considerable Share of its Motion, and the Heads of the Bones glide smoothly over each other.

‡ Est quedam sanies, quæ vel ἰχάρῳ vel μελικέρα nominatur. Ἰχάρ, tenuis, subalbidus, ex malo ulcere exit, maximeque ubi, nervo læso, inflammatio secuta est. Μελικέρα crassior est, glutinosior, et subalbida, mellique albo subfimis. Fertur hæc quoque ex malis ulceribus. Lib. v. cap. 26.

* Duplicem autem esse materiam effluentem ex articulo hydrarthro obfesso, nimirum aut tenuis, aut subtilis, quæ proprie Ichor dicitur, aut aliquantum spissior, et Melicera appellatur, quæ diversitas ratione humoris, in corpore redundantis, accidit. Si enim pituitosus fuerit æger, materia quæ effluit, ichorosa, alba, et veluti serum lactis existet: nonnunquam quoque aliquo modo viscida, glutinosa ac si albumen ovi concussum permixtum esset, effluit. Si biliosum fuerit corpus, aliquantum flavescet, sin atrabiliaris, obscurus erit. Rubescet vero, et cruenta erit, si æger plethoricus, aut vena aliqua capillaris erosa fuerit. *Hildanus de Hydrarthro*, p. 835.

terminating.

terminating in an Abscess, the Cartilages † with the Heads of the Bones they cover are at last considerably injured, and sometimes entirely destroyed. To prevent these fatal Consequences, Amputation is the only Remedy at present known or established. An Anchylosis in this Case cannot be expected.

WHEN an Abscess is formed in the Joint from a Suppuration of the mucilaginous Glands, and the cartilaginous Surfaces are even thereby destroyed, if by a small and well-timed Opening the Matter can be discharged, and the Ulceration properly cleansed, Granulations may arise, or the bony Fibres of the Epiphyses shoot out, which filling up the Cavity of the Joint, will form a true and bony Anchylosis. But the morbid State of the Ligaments in this Disease, from which

† The Texture of these articular Cartilages, if examined in a natural and sound State, is very uniform and compact, so that in whatever Direction you divide them, they appear like Wax or an hardened Solution of a glutinous Substance, not at all laminated as in the Composition of most, if not all, other Cartilages, and without the least Appearance of Organization. By boiling or Calcination their Structure becomes more apparent, and they seem made up of Fibres in a perpendicular Direction to the Substance of the Bone. This is most certainly a very wise and providential Contrivance, as it preserves that Elasticity, which their Situation most necessarily requires, and guards them from those Compressions which violent Motions, as jumping, or even the common Actions of Life, would otherwise unavoidably occasion. Though these Cartilages seem inorganized, yet they really are not so, since it is absolutely necessary they should be supplied with Vessels to afford them a proper Nourishment, and prevent their Decay: This is carried on by Vessels, whose Diameters being too small to admit a sanguineous Fluid, are therefore in a natural State not to be perceived. Every Part of the Body, where the vascular System obtains, is liable to Inflammation and its Consequences, which produce such Appearances and Effects as may be observed particular to the Situation, as well as Nature of the Parts. Bones, which we know are the hardest of any Part of the Human Composition, will, from a given Cause, inflame and ulcerate. Cartilages likewise will suffer from a similar Affection, in their Texture, inflame, grow soft, and, if soaking for any Time in Matter in a diseased Joint, at last be dissolved into a meer Mucus. Some difference however is to be perceived in the Manner Cartilages are affected, particularly after an Amputation in the smaller Articulations, where, contrary to the usually received Notion, they will sometimes slough off, and exfoliate in small Bits, not unlike the Scales of Fishes, which is there most probably occasioned by the Thinness of their Strata, as well as from their being more exposed to the Action of the Air.

there

there is scarcely a Possibility of their recovering themselves, will prove a continual Fomes for the Destruction of the Joint †.

As the Ligaments of every Joint are equally liable to be in the same Manner injured; when this Malady is seated in the Hip Amputation cannot take Place. Here the Case seems desperate. The Matter insinuates itself more or less deep in various Parts of the Thigh, but most commonly on the Outside, and under the Expansion of the Fascia Lata; from which the surrounding Cellular Membrane is so destroyed and dissolved into Matter, that the Muscle appears after a large Incision, when the Lips of the Wound are retracted, as distinct as if dissected, and cleaned by the Knife.

† The Propriety of Openings into the Joints seems to be an Affair of no small Consequence. Several Instances are upon Record of Incisions being made into the Cavity of a dropsical Joint, whereby the Water has been discharged, and the Patients sometimes, with the Assistance of proper Discutients and strengthening Applications, met with a radical Cure. In this Operation it certainly is necessary to make the Opening as small as possible, even by a simple Puncture of the Lancet, where the Part is most free from tendinous Expansions; this appears to be at the Inside of the Knee, where nothing scarcely covers the Ligament but the common Skin. The greatest Precaution however must even here be made use of, and at the same Time that the Limb is kept entirely at rest, we must not neglect a proper Bandage, and spirituous Fomentations to prevent the coming on of an Inflammation. By this Method I have succeeded in letting out a thin, purulent Fluid collected in the Joint from a diseased State of the surrounding Parts, and which was attended with no other bad Consequence than its filling again in some little Time afterwards. But when an Abscess is formed in the Joint, Matters are differently circumstanced, and we have Dangers to encounter, which require our utmost Care and Skill to prevent or counteract.

The excessive Pain which inseparably tends the Formation of Matter in the Cavity of the Joint from violent Inflammations, so disturbs the animal Oeconomy, and hurries the Circulation, that the Patient's Case soon becomes critical; and if the Commotion of the nervous System cannot be quieted, even Amputation will not avail. But in chronic Cases, where Suppuration goes on slowly, the Patient's Life is not in such immediate Danger, and may for the present be saved by the Loss of the Limb, if the Operation be not too long deferred: For we have little Chance of a Cure by a Discharge of the Matter, though attempted with the greatest Caution and Skill, as the surrounding Parts are so much diseased, and the Cavity immediately containing it may be considered as one entire Ulcer.

ONE general Attendant on Wounds penetrating the Joints is an excessive and constant Discharge from the Synovial Glands: If the Opening admits the external Air, the Flux becomes so great as speedily to prove destructive to the Patient: For as the Secretions in general are considerably increased by every Irritation, the Access of the Air will prove a constant Stimulus, as well by changing the bland Disposition of the Synovia into an acrimonious Ichor, as by its own Irritation as an extraneous Body. Out of many Instances of this Kind I will here mention two recent ones.

A. B. between fifty and sixty Years of Age, by a Fall on his Shoulder dislocated the internal Extremity of the Clavicle from its Articulation with the Sternum. Attempts were made to reduce and retain it in its proper Place, but to no Purpose: A large Tumour was formed in the Joint, which bursting, discharged a considerable Quantity of glairy Liquor. This was followed by a great Discharge of Synovia, which no Injections could suppress. His Strength visibly diminished, and a general Atrophy put an End to his Life in about three Months.

AN old Man, subject to Epileptic Fits, fell with his Knees on the uppermost Bar of an Iron Grate, in which there was Fire: In this Situation he remained insensible, and without Help, 'till an Eschar was made through the Skin, Ligament of the Patella, and circular Ligament of each Joint. The Sloughs separated and digested out in about a Fortnight, when a large and constant Discharge of Synovia followed; to suppress which every Endeavour proved ineffectual. The Patient lost his Appetite, had a constant Heat, quick and low Pulse,

Pulse, and sunk under it in about a Month from the Commencement of the Discharge.

FROM the above Assertions and Proofs of the Fatality of Wounds of the Ligaments, I would be understood to except those, where the Ligaments are ruptured and lacerated without an external Wound in the Integuments; a Circumstance which modern Inquiries * have investigated, and found to be a real Fact, particularly in most Dislocations: Or, when through that Aperture, the Synovia is extravasated, and diffused to some distant Part, where forming an Abscess, an Evacuation is made through the Skin, either by Nature or Art. In both these Cases the external Air, so prejudicial in Wounds of the Joints, is not admitted into their Cavities; whence the first commonly admits of a Cure, and the last affords us some Instances of a like happy Termination; tho' it must be owned the Process is generally very tedious and troublesome. Of this I shall here subjoin a remarkable Proof.

MR. R. received a violent Strain on his Shoulder, which at first give him great Pain, but in two or three Days was so much abated, that he was able to follow his usual Business, which was rather laborious. In about ten Days, the Pain returned, though of a different Kind, and much more diffused than at first; soon after which a Swelling appeared on the Scapula, another on his Breast, and a third below the Deltoid Muscle on the fore Part of his Arm. As the Case seemed dangerous, a Consultation was agreed upon

* Vide Medical Inquires, Vol. II.

with an eminent Surgeon, when it was determined to open each by Incision: That on the Breast was found covered by the great and little Pectoral Muscles; that on the Scapula by the Cucullaris; and that on the Arm lay beneath the Teguments, on the Bellies of the Biceps and Brachialis internus. Through these Openings a large Quantity of a mixed, purulent, and gelatinous Matter was discharged, and by introducing the Probe through the last Aperture, it found an easy Passage under the Vagina of the long Head of the Biceps, into the Cavity of the Joint, whose Cartilages seemed sound and unaffected. The Wounds on the Back and Breast were healed in about six Weeks; but through that on the Arm, there was a large and constant Flux of Synovia, whereby the Patient was greatly reduced. By the Use of proper Internals however, and the exactest Applications of long Plaister Compresses adapted to the Canal or Vagina, through which the Synovia flowed, the Wound was healed, with great Difficulty, in about three Months. After this a little still escaped, and caused five or six lesser Tumors on different Parts of the Arm, some of which were opened, and others discussed. The Patient at last recovered his Health and Strength so as to enjoy the lower Motions of his Arm, but is deprived of the upper, from the Decay of the Deltoid Muscle, which might be in a great Measure occasioned by the long and constant Pressure of the Compress and Bandage.

SECTION V.

CASE I. *F*. B. when about 11 Years of Age, observed a
 • Stiffness in his right Knee, which prevented his
 moving the Joint with its natural Freedom and Ease. For this
 he could assign no other Cause than being frequently wet by
 attending on the fishing Boats.

SOON after he received a violent Blow on the affected
 Knee, which gave him considerable Pain, and occasioned his
 limping for several Days. This however was soon relieved,
 and he recovered to the same State as before the Accident.

HE now engaged himself to a Tradesman, whose Business,
 obliging him to be much on Horseback, his Knee began to
 enlarge considerably, and was frequently very painful. Still
 however he continued the Duties of his Service, though the
 Joint encreased in Size daily, 'till the Pain growing much
 more severe, he was disabled from either riding or walking
 as before.

IN this State he applied to me, when, upon Examination,
 I found the Knee greatly enlarged, the Integuments much
 thickened, and a considerable Quantity of a Fluid under
 them. His Appetite began to fail him, a Fever with pro-
 fuse nocturnal Sweats came on, and his Constitution appeared
 much upon the Decline.

THINKING he might suffer from an Absorption of this
 Fluid, I made a small Incision into the Joint. The Dis-
 charge was of a very thin Consistence, and of a light-brown
 Colour. As by this Means we ascertained the State of the
 Articulation, and found that the Heads of the Bones were
 denuded

denuded of their Cartilages, I endeavoured, by confining him to his Bed, and keeping the Limb quiet, to promote an Anchylofis, which from his Youth I had some Hopes might be effected. But this Intention was soon defeated by a daily Alteration for the worfe, and Amputation appeared the only Refource, whereby his Life might be faved. To this he readily confented, and from it recovered a perfect State of Health.

UPON examining the Limb, the Integuments appeared much thickened, and the Adipofe Membrane contained here and there feveral Cells of Fat, of a yellow Colour, and rather firmer Confiftence than natural. The Ligaments were very much enlarged, their Texture broken, and become fo foft that the flichteft Preflure would break through them.

UPON cleaning the Bones I found the ligamentous Stratum, which divides the Epiphyfis from the Body of the Femur, externally very foft, and much difeafed; but, upon fawing through the Femur longitudinally, it appeared in the Middle perfectly found, and as compact as ufual. The cortical Plate of the Femur eafily to be fcaled off from the Cancelli, which ftill continued in a very found uncorrupted State. The Cartilages at the Extremities of the Femur and Tibia entirely destroyed, fo that the bony Fibres or Cancelli were quite bare and uncovered; as reprefented in Plates II. and III.

I have felected this and the following Cafe out of many others to fhew the different Manner in which the Bone may be found affected, as in Plates II. III. IV. V.

EXPLANATION of PLATE II.

FIG. 1. represents the Leg, Thigh, and diseased Joint, as they appear in general under this Complaint. In some indeed the Leg and Thigh are much more wasted, in others, from being very oedematous, much more tumefied. But the Form of the enlarged Joint, and the Cavity of the Ham filled up, almost always as here expressed. The Contraction of the Heel from the Ground will be in Proportion to the Posture the Patient has kept his Leg in.

FIG. 2. represents a longitudinal Section of the Femur, to shew the Manner in which the ligamentous Stratum divides the Epiphysis from the Body of the Bone as marked at A, and which is an internal View of the Bone expressed in Plate III.

PLATE III.

THE Femur described in Case 1: Where the Disease of the ligamentous Stratum externally *, the Projection of the bony Fibres, and the Scaling of the cortical Plate of the Femur, are so particularly expressed that it were a Pity to spoil the Plate by References.

* See the Consequences of this on some Occasions, Page 82. Line 25.

CASE 2. *M. B.* about 30 Years of Age, of a robust Habit of Body, and in other Respects enjoying a good State of Health, had for some Time been subject, upon every slight Cold, to an Opthalmy, which was not only very troublesome, but even threatened some Prejudice to her Sight. As her Situation of Life obliged her to perform the menial Offices of a Servant, she was very anxious to get rid of such a Complaint, and therefore procured herself a Remedy (as the common People generally express it) to *backen the Humour*. This answered her Desire, and her Eye appeared to be remarkably relieved. But a few Nights afterwards she was attacked with a severe excruciating Pain in her right Knee, which at the same Time became considerably tumefied. By proper Remedies she recovered the Use of her Leg, but could by no Means bend it so freely as to kneel without Pain.

IN this Condition she continued three or four Years. About the Expiration of which Time, the Motion of the Knee was so confined that she walked with Difficulty and Pain. She again applied for Relief to several of the Faculty, but gained very little, if any. For four Years more she continued in Service, though her Complaints seemed to encrease daily. The Knee was considerably enlarged, and a small Ulcer appeared in the Ham of the affected Joint, which discharged but little, and though of a thin Consistence, was not at all offensive in Smell. The Joint was so much incurvated, that she could by no Means bring her Heel to the Ground, though from such a Position, a Cavity might have been expected in the Ham; yet here it was upon a Level with her Thigh, and appeared to be filled up by the same Kind of Tumefaction as that which every where invested the Joint: As represented Fig. 1, Plate II.

IN

IN this State she fell under my Care, when, as the Joint was so confined by the Swelling, that I could not ascertain the exact State of the Extremities of the Femur and Tibia within the Articulation, I applied a Caustic between the Patella and Tuberosity of the Tibia, the Discharge from which, after some little Time reducing the Swelling round the Joint, gave me an Opportunity of perceiving that the Extremities of the Bones were divested of their Cartilage, and becoming carious.

I now urged the Necessity of Amputation, which she would by no Means submit to, but begged we would try to procure her Relief by some other Means. Our Endeavours, as might be reasonably supposed, were ineffectual. Her Leg by this Delay became highly oedematous, and the Matter, instead of being discharged at the Ulcer in the Ham, or the Place where the Caustic was applied, seemed to have found its Way, as is usual in such inveterate Cases, between the Gastrocnemii Muscles. Her Pains now became quite violent in the Day, and in the Night almost insupportable. She grew Hæctic, and her Life appeared in imminent Danger; so that she at last desired Amputation; which was accordingly performed, and from which she recovered about the usual Time.

UPON examining the Limb, the Integuments, Cellular Membrane, and Ligaments were so confused and blended together, that it was impossible to fix upon the exact Limits, where they might have been separated in a natural sound State, and afforded the exact Appearances usual in such old and confirmed Cases.

WITH no small Pains I cleared the Femur and Tibia, which afford the best Proof of the Effects produced by Time in this Disease, as in Plates IV. and V.

PLATE IV.

The Femur reversed as the most commodious View.

- A. The Extremity of the internal Condyle, which in a natural State is covered by the Cartilage, found and smooth on its Surface.
- B. The Edge of the extreme Surface of this Condyle, where the Ligament is inserted, much diseased and surrounded by several unequal Eminences formed by an Effusion of a bony Matter from this Part.
- C. The only Remains of the smooth Surface, at the Extremity of the external Condyle, appearing as two little Islands. The cancellated Substance exposed in every other Part, and corroded here and there in a greater or less Degree, as expressed by the Shades.

P L A T E V.

The Tibia reversed.

- A. The Surface of the internal Cavity, receiving the internal Condyle, found and smooth, but surrounded every where, as at
- B. by the same Kind of bony Matter, as at B Plate IV. only here in a much more considerable Quantity, and covering the Bone for some Length downwards.
- C. The Remains of the smooth Surface of the external Cavity, around which the cancellated Substance is destroyed for some considerable Depth, and seems more particularly on this Side, to have been discharged through the Hole,
- D. and afterwards encrusted upon the upper Part of the Tibia, as well as superior Extremity of the Fibula, as represented at E.

FROM considering the Observations made from Dissections in general, we must readily perceive the Impropriety of those Opinions, which confound this Complaint with the Spina Ventosa; but to illustrate it still further, I shall here subjoin a few Reflexions.

THE Spina Ventosa appears, by the Testimony of all Authors, to have been first mentioned by the *Arabians*.—*Friend* tells us, “*Primus Rhazes descripsit Spinam Ventosam,*
“*cujus natura ut ab eo explicatur, in erosione atque cor-*

“ rptione ossis una cum dolore pungenti ac tumore, consistit.” To this that learned Physician and Historian adds,
 “ Quæ quidem descriptio haud incongrua est: Morbus enim
 “ ab initio intra os, atque in ejus medulla, ortum habet; atque
 “ ita sensim affectas disjungit exteriores lamellas, ut ab
 “ eo tumor nascatur; qui cum periostrum premit distendatque,
 “ dolorem movet.”

In *Avicenna* we find, “ Ventositatis spinæ causæ sunt humores acuti penetrantes in os, et corrodescentes ipsum, et incessus ventositatis spinæ, est incessus doloris juncturarum. Veruntamen materia in dolore juncturarum est in carne, et in ventositate spinæ est in osse, et ejus additio corrumpit ossis partem unam post aliam.”

WITH very little material Addition or Alteration was this Account handed down by different Authors, 'till *Pandolphinus* published a small Tract on this Disease, which being afterwards reprinted by *Mercklin*, with some valuable Annotations, continues to this Day the best Author on the Subject.

“ MALUM nostrum,” says he, “ in ossis potius corruptione, quam in exulceratione carnis consistere, hæc fere evincunt rationes: 1mo, Quia ossa, et quidem interius primo ac primario corrumpuntur, ossisque corruptio semper præcedit corruptionem carnis; atque hinc si ossis et carnis vitium simul apparet, illud semper hoc prius extitit. 2do, Quia ossis quam carnis longe major ibi est moles, ubi vitium conspicitur, atque adeo os quam caro corruptione huic magis est obnoxium. 3tio, Quia loco etiam alias ex carni, tamen tumor non adeo exilis attollitur, ut ita os intumuisse et primario læsum esse, in aprico sit. 4to, Quia curatio
 “ ad

“ ad os præcipue dirigi debet, et nisi persanato osse curatio
 “ nulla est *.”

FROM this, as the full and general Sense of all his Predecessors, we must conclude, that the Spina Ventosa, in their Opinion, originally began within the Bone, and that, whenever the fleshy Parts above it were affected, it was the Consequence of the very putrid and rotten State of the Bone. Modern Observations in general †, and those few Cases in particular which have fallen under my own Inspection, perfectly agree with this Description, and the Appearances may be satisfactorily accounted for, upon the known Principles of, and Changes in, Bones when diseased.

It is obvious therefore in what Respect, and how widely, the White Swelling and Spina Ventosa differ ‡. In the one, though the Bone affected is considerably enlarged, and otherwise diseased, the Integuments move freely over it, and are not in the least discoloured, 'till the Complaint, originally begun within the Lamina, has injured the external Plate, and the acrimonious Matter is seeking its Way outwards. The

* Annotat. Mercklini in Pandolphini, caput i.

† Mr. Amyand's Paper in the Philosoph. Transact. on the Spina Ventosa, deserves particular Notice.

‡ The general Manner in which these Complaints have been confounded together may be instanced in the following Description of Doctor *Schlinching* in the Philosophical Transactions: “ I have observed the Spina Ventosa to be very like the Venereal Disease, and to corrupt the Humours and Vessels of the Body. It does not always first affect the Bones or Marrow; but sometimes the fat Membranes, and at last the Bones themselves. The Periosteum, and other ambient Parts, sometimes only appear tumefied, and upon their being cut away, the Bone does not seem infected. In some the Bone swells first in the Epiphysis, and sometimes one or more of the Bones of the Fingers swell all over. When I have found a Bone carious, I have also perceived Ulcers, Fistulas, Knots in the Buttocks and under the Armpits, and the Eyes, and other Parts, either inflamed or exulcerated. These Symptoms yield only to Mercury, which is the peculiar Remedy for this, and the Venereal Disease.”

Integuments then inflame, are very much diseased, and at last break out into an unconquerable Ulcer. In the other, the Parts above the Joint are always first affected, and are very often highly diseased when the Bones themselves are quite sound. It has indeed been commonly advanced, that the Bones in the White-Swelling are almost always enlarged; This I never observed, unless in young Subjects, where it might have been complicated with the Rickets, though I have examined a great Number of them when injured by this Complaint. I am inclined to think, that this Notion either arose from the deceitful Feel through the diseased Integuments, &c. or its being confounded with the Spina Ventosa. From the Progress which the Complaint may be observed to make in the Destruction of the Parts above the Joint, and the different Degrees in which the Joint itself has been found diseased, we have little Reason to expect such an Appearance, more especially as the Ligaments are very frequently destroyed when the Bone is either not at all injured, or in the most trifling Manner. We can scarcely expect the Bone to be enlarged, when it is diseased merely by the Lodgement of Matter, or its Propinquity to Parts in a very vitiated State.

A N

APPENDIX,

CONTAINING

TWELVE CASES

I N

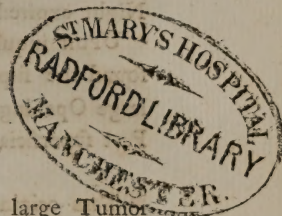
MEDICINE and SURGERY.

*Observata licet prognosi potius quam the-
rapæiæ idonea posteris pandere non inglorium
est.*

APPENDIX.

CASE I.

AN HYDROPHTHALMIA.



F. *A.* about thirty Years of Age, had a large Tumor filling up the Cavity of the Orbit of the Eye, which projecting forwards to the Size of a Goose's Egg was externally covered by a Dilatation of the Eyelids. He could give no other Account of it, than that it had been some Time arriving to that Size, and that it proceeded, as he imagined, from a violent Blow he had some Years before received upon his Eye. Upon Examination it felt very hard and firm, did not give way in the least to Pressure, but resisted the Touch like a Schirrus. As he complained much of the constant Pain it gave him, and was very desirous of any Means for its Relief, Extirpation was determined upon. Previous to the Operation, the Surgeon, who was under some Doubts as to the real Nature of the Case, plunged his Lancet into the Tumor, from whence there issued through the Incision a Fluid to the Amount of five Ounces. The Swelling then entirely subsided, and the Eyelids sunk within the Orbit, whose superciliary Edge was much enlarged.

THE Wound was then dressed up, and for two or three Days discharged kindly, 'till the Appearance of some nasty

R

black

black Sloughs, smelling particularly offensive, alarmed us, though they were at first thought to be the sloughing out of the Cyst. These Appearances encreased at every Dressing. In the Morning of the fifth Day he grew insensible, and that Night expired.

UPON inquiring into the Nature of this Complaint, we found the superior Part of the Orbit very carious, with a large Opening through it, which exposed the Brain, at that Part superficially sphacelated.

THE original Complaint in this Case was undoubtedly an Hydrophthalmia, which, by not being reduced in proper Time, had by its Pressure destroyed the Bone in that Part. In another Case of the same Kind, which happened under the Inspection of a Friend of mine, and in which the Water was let out, though not 'till the Complaint was of some considerable Standing, the Orbit was likewise injured, tho' the Caries did not extend itself quite through the Bone. We may hence draw a very necessary Caution, never to suffer the Water to collect in too great a Quantity in this Species of Dropsy, lest it destroy the Bone, which must be ever attended with the greatest Danger.

CASE II.

POLYPOSE CONCRETIONS *in the* HEART.

J. M. about forty Years of Age, of a robust Habit, and by Occupation an Husbandman, had for ten Years past been subject to a very troublesome Cough, attended for most part of that Time with a violent Pain and disagreeable Noise in the Head. At the Beginning of the Year 1762, when very cold, and employed in Husbandry Business, he was seized with a very considerable Palpitation at his Heart, and a violent Pain in his Back and left Shoulder. From this Time his Cough encreased with such Violence that he sometimes lost from his Nose a Quart of Blood in twenty-four Hours. His Breathing became very difficult, but was commonly relieved by a Mixture of Oil and Honey. At first these Complaints were mitigated by Venesection, but at last were not in the least affected by it. He was for the most part costive, troubled with a lurking Fever, and made Water but by a spoonful at a Time, and that very thick.

WHEN I first saw him his Eyes appeared flushed, and Countenance very livid, his Breathing was short and laborious, his Legs anasaruous, and Water in the Abdomen; his Appetite bad, and constant Pain in his Stomach; he was very thirsty, and his Spittle frequently tinged with Blood. A remarkable strong Pulsation might be perceived in the Scrobiculus Cordis, very troublesome to him, and towards the latter Part of his Life, the Pain in his Head became so violent as frequently to prevent his lying down, whilst the

Noise there seemed to him much like the Dashing of a Cascade or Mill, and affected his Hearing very considerably. The Pulsation of the Arteries was by no Means irregular or intermitting, though rather quick, and once, upon taking away about twelve Ounces of Blood from the Arm, I observed it to strike bolder and more distinct.

THOUGH many Attempts were made by Medicine for his Relief, they effected but little, nor did he reap any particular Benefit but from keeping his Body in a very lax State.

FINDING himself one Morning worse than usual, he kept his Bed, and was supposed by those about him in a dying State. Even now, though insensible and gasping for Breath, his Pulse continued rather strong, though quick, but by no Means irregular. In this Condition he continued 'till the next Night, when he died.

UPON exposing the Cavity of the Thorax, I found the Vessels spent on the Sternum very much enlarged, and turgid with Blood, as indeed they were upon the whole Parietes of the Thorax. The Pericardium with its contained Water was as natural. The Heart appeared very large, and the Coronary Vessels very full of a thick black Blood. The right Auricle was very much dilated, and upon being laid open full of grumous Blood. In the right and left Ventricles were two Polypose Concretions of a firm Substance, and yellow Colour not unlike a condensed Adipose Membrane, arising from the Interstices of the Columnæ Carneæ of the Ventricles, from whence they had extended themselves into the Beginning of the Pulmonary Artery and Aorta: In the left Ventricle, particularly, the Concretion appeared much more compact and larger, and formed a kind of middle Septum

Septum to its Cavity. The Lungs were excessively distended though there was not the least Appearance of Putrefaction.

THE Stomach was very much displaced; and the Arch of the Colon dropt down in the Middle of the abdominal Cavity. The Spleen was very much enlarged, and studded as it were on its Surface with some very hard cartilaginous Substances. The Blood Vessels of the Intestines very conspicuous.

THIS Man's Complaints are easily to be accounted for from the Obstruction the Circulation met with in the Heart.

He was remarkably passionate, and of a very malicious Disposition. How far such Passions affecting the Heart, might have been the original Cause of this Disease, future Observations must determine.

C A S E III.

ADHESIONS *of the LUNGS to the PLEURA.*

A Girl, about twenty-five Years of Age, applied for the Relief of a Cough attended with some feverish Complaints, which had for some Time been very troublesome to her. The Medicines prescribed for her did not produce the least salutary Effect, so that her Complaints daily grew worse. Her Fever and Cough encreased, her Countenance was constantly flushed; she complained of great Pains in both her Sides, but particularly so in the left, with a constant Palpitation of her Heart. Her Breathing was so short and troublesome

blesome that, unless in an erect Posture, she was almost suffocated. At last she became particularly restless, was tormented with a constant Thirst, and in few Days, worn out by excessive Pains, expired.

UPON examining the Thorax, the Lungs were firmly accreted to the Pleura and Diaphragm, but particularly so on the left Side, where the Attachment was so strong that it was with the greatest Difficulty I could separate them in some Parts; but in others I could not at all. The Pericardium was so closely united to the Heart, and to the Lungs, that I could by no Means divide them. In the Abdomen nothing appeared worth particular Notice.

DIEMERBROECK is of Opinion, that a third or fourth Part of Mankind suffer an Adhesion of the Lungs to the Pleura in a greater or less Degree, and every one much conversant with anatomical Dissections must have found them in Patients, who, when alive, never laboured under any pulmonary Disease. But it must have been observed too, that such Adhesions are of two Kinds; the one where the Lungs are joined to the circumambient Parts by a firm, viscid, and coriaceous Substance of some considerable Thickness, and bearing the strongest Resemblance to inspissated Mucus; the other, where they are absolutely united and concreted together.

THE former, which is by much the most commonly met with, agglutinates the Lungs to the Pleura for a greater or less Extent, or sometimes only at different Points. This Connection is seldom, if ever, productive of any bad Consequences to the Patient, since if the Thorax is examined before the Body is advancing towards a State of Putrefaction, and

and the Patient did not die of any other pulmonic Disease, the Lungs are generally found at some Distance from the Pleura, and this connecting Substance quitting it, as it were, to admit of their Collapsion. In some we may observe the Lungs conjoined to the Pleura by a Kind of membranous or ligamentous Substance, which will not give way in the least to the Collapsion of the Air Vessels, but draws up the Surface of the Lungs at the Places of Connexion. This I imagine is, in Consistence only, rendered different from the former by Length of Time, and that they are both formed from an excessive Excretion and inspissated State of that unctuous Moisture, which is destined to lubricate and facilitate the Motion of the Lungs.

THE latter Species is, I believe, seldom met with of any Extent without some Injury to Respiration which will be greater, if the Adhesion is any-ways considerable between the Lungs and Pericardium, or Diaphragm; as in the one, the Motion of the Heart must be much confined, and the circulating Power consequently diminished, in the other, the due Expansion of the Lungs, and proper Action of the Diaphragm, must be prevented, consequently the necessary Freedom of Respiration injured. The Symptoms of the above described Case plainly indicate such a morbid State of the Contents of the Thorax, and these for very obvious Reasons in Physiology.

A similar Kind of Accretion is frequently to be observed, affecting the Intestines, when the free Circulation of the Blood is impeded through the descending Arteries in the Abdomen, and is undoubtedly produced in both Cases by a Deficiency of that lubricating Moisture necessary for such Parts to move properly over each other.

CASE

CASE IV.

On LUMBAR ABSCESES.

J. E. in the Year 1755, when eight Years of Age, received a violent Blow on the Spine, about the first of the Lumbar Vertebrae, where he ever afterwards felt at Times more or less of a dull Pain, with a Kind of colicky Complaint in his Bowels. In 1761, he first remarked the Spine to be fuller than natural in that Part; but this did not prevent his officiating as a Fifer to the Corps of Militia he belonged to 'till *March* 1764, when he applied in a very hectic State to our Hospital for a large Swelling he had lately perceived in the upper Part of his right Thigh, which, upon being opened, discharged about two Pounds of a thin sanious Matter. Almost immediately after he was put to Bed he grew uneasy in his Bowels, and for best Part of the succeeding Night had an irresistable and constant Discharge of Wind *per Anum*. For about three or four Months the Wound discharged largely, and his Appetite failing him, he was desirous of leaving the House to try the Effect of the Air abroad. From this Time he grew worse, 'till quite reduced to a meer Skeleton, he died about the twentieth Month after Opening of the Abscess.

UPON inspecting the Abdomen, I found all the Viscera in a very sound State. Having removed the Intestines, and cut through the Psoas magnus, I discovered a Sinus, whose Extremity terminated at the Wound in the Thigh, and which began between the first and second of the Lumbar Vertebrae, from

from whence without doubt arose the Matter collected in the Abscess. The Bodies of these Vertebrae were slightly carious, and as well as their Processes very soft and porous.

THIS Case is by no Means uncommon, but is more frequently met with among the laborious Part of Mankind, or such as have suffered any accidental Violence on that Part of the Spine, or the Muscles connected thereto. From this latter Cause we meet with the most frequent Examples. Upon endeavouring to raise too great a Weight, we may have sometimes observed a Person to complain of a very troublesome painful Cramp, or, as it is usually expressed, Crick in the Back. This proceeds from too great an Exertion of muscular Force, in consequence of which the Muscles lose their Tone and Power for a little Time, or are otherwise injured. From the Connections of the Psoas Magnus to so many of the Vertebrae, the Injury is generally found under this Muscle, and the Patient complains that the Seat of his Pain is at the Inside of the Spine. An Inability to Motion immediately succeeds the Accident, and in general an Attempt to move the Leg and Thigh of the affected Side is attended with a most severe Pain. He can by no Means stand erect, and sometimes finds a great Uneasiness in his Belly. If the Effort to raise the Weight has been very great, and the Body at the same Time twisted, a Distortion of the Spine has been the Consequence, as happened in the following Instance.

CASE V.

A. S. an Husbandman, about twenty-three Years of Age, of a tender and delicate Constitution, by attempting to lift up a Plow on his Shoulders distorted one of the Vertebrae Lumborum, which was immediately succeeded by a Pain, though in a slight Degree, in the Part affected, an Inability to stand upright, and a Numbness in both Thighs and Legs, which occasioned him to walk paralytic. These Symptoms however gradually diminished, and in a few Days were so far gone that he could walk about, though rather feebly, without Sticks, which he was before obliged to have recourse to. He now began to complain of a Pain at the injured Part of the Spine, which extended itself downwards to the Bottom of his Belly. This Complaint daily increased 'till about the End of the third Month, when he was alarmed at the Appearance of a Tumour in his left Groin. An eminent Surgeon then consulted, suspecting the Danger of the Case, advised nothing to be done. In about three Months more the Tumour considerably enlarged, but without the least Discolouration of the Skin, was evidently full of Matter, and at last bursting of itself discharged a great Quantity. It was then thought proper to enlarge the Opening. For two Months the Wound discharged a thick fetid Pus, and his Appetite continued so good that he could relish, and even digest, any Sustenance whatever.

ABOUT this Time another Tumour began to appear in the other Thigh, near, or rather upon, the great Trochanter, which daily encreased very considerably, and was so painful

to

to him both Day and Night that he became emaciated to the highest Degree. Nothing would satisfy him now, as he flattered himself with the Hopes of Relief therefrom, but the Opening of this last Abscess, out of which there issued by Pressure a Wash-hand Bason full of a thick, fætid, glairy Discharge. From this Time his little remaining Strength gradually declined, and though his Appetite still continued good, he in a little Time sunk under the Profuseness of the two Discharges.

I got Leave to open the Abdomen. The Viscera in general appeared very sound; nor was there the least Appearance of Matter in the Abdomen, though the chief Pain by his own Description lay entirely in his Intestines, which however, it may not be improper to observe, always performed their Office with a due and natural Regularity. Upon removing the Intestines for a View of the Vertebrae, I perceived a Discolouration in the Peritonæal Coat that covers the Psoas Magnus. Upon just touching it with a Knife, a Quantity of Matter ran into the Abdomen, and upon examining it more minutely, I found that Muscle almost entirely consumed, and that the Matter formed in this Part had from thence forced its Way downwards, on each Side, in the Direction of that Muscle, 'till it vented itself at both Places before mentioned. The Bodies of the two Vertebrae, the last of the Back and first of the Loins were quite carious, so that I could almost crumble them to Pieces. The Condition of the Processes some Circumstances prevented me from examining.

FROM the general Termination of such Cases, we cannot be too careful in examining every Circumstance, or too atten-

tive to every Symptom which offers after, and may be with reason supposed to arise from such Accidents.

CASE VI.

STONE *in the* BLADDER *with* CALCULOUS CONCRETIONS
in the KIDNEY.

IN February, 1761, I was called to a Lad about fourteen Years of Age, who had a large Stone in his Urethra, which being too big to pass was stopped about an Inch below the Glans Penis, where, being sharp and angular, it had at its Extremities perforated the Urethra, so that the Water gushed, when he attempted to empty his Bladder, with a considerable Force on both Sides.

I cut down upon, and extracted, the Stone in the usual Way. Some Water came through the Incision for a Day or two; but in a Fortnight the Wound was entirely healed, and he urined as freely as ever.

Six Months afterwards he was attacked with a most violent Pain in his Head, which in a few Days put an End to his Life.

As in the former Part of his Life he had at several Times voided small Stones, I prevailed upon his Friends to let me examine the Body.

THE Viscera in general appeared very sound. Upon opening the Bladder there were two Calculi of a very singular Shape, and white Colour, not unlike Chalk Stones, the one rather more than an Inch long, and quite triangular, the other an oblong Square, and of such a Length that cut thro' the Middle

dle it would exactly have formed two Dies. Upon removing the Intestines the Kidnies appeared externally in a very natural State, but in the Infundibula there was a great Quantity of a thick milky Liquor, which, upon being rubbed between the Finger and Thumb, felt gritty, as if full of fine Sand. Upon dividing the Substance of the Kidney through the Middle, it cut very rough, and upon Examination was full of calcarious Particles, though not so coarse as those which offered in the Infundibula.

I laid open the Urethra to see what Appearance the Incision had left on its internal Surface, but there was not the least Vestige of a Cicatrix where the Wound had been made, and the Urethra appeared there, as in every other Part, perfectly natural.

UPON examining the Kidnies of Patients, who have been afflicted with the Stone in the Bladder, I have met with at different Times more or less of a small red Sand in the Pelvis and Infundibula; but it is very rare that we meet with the calcarious Particles diffeminated in such large Quantity thro' the Substance of the Kidnies.

CHILDREN, who are afflicted with the Stone, seldom overcome their natural Disposition to generate them, so that Lithotomy is but a temporary Cure, and they are generally destroyed in the early Part of their Life. It has been observed too, that the Calculi of Children are more firm, and not so easily dissoluble, when out of the Body, in any lithontriptic Menstruum.

HAVE not we therefore some Reason to suppose, that the calculous Concretions in Children arise in Part from a particular

cular Disposition in the Vascular System of the Kidney to retard those earthy Particles, which are upon every Occasion the Basis of the Stone?

C A S E VII.

Of MORTAL DYSURYS during PREGNANCY.

A Woman, who had for some Years suffered more or less at Times from a dull heavy Pain at the Bottom of the Abdomen, and had observed her Menses, though they returned at their regular Periods, to be discharged in a very considerable Quantity, married about the Age of thirty-five, and within twelve Months after found herself pregnant. When she was advanced to the third Month of her Pregnancy, she found so great a Difficulty in making Water, that she could discharge but little at a Time, and that not without much Pain. This Complaint seemed to encrease daily; yet, as it was supposed by her Friends to be an attending Symptom of her Pregnancy, was little regarded.

ABOUT the fourteenth Week her Pains encreased, at Times were very excruciating, and her Water came away involuntarily. She grew feverish, and the Abdomen from the Navel to the Pubes was very sore and painful to the Touch. Upon introducing a Finger up the Vagina, the Os Tincæ was found in its natural Condition, but the posterior Part of the Uterus very much indurated. Her Complaints now became so constantly severe, that, worn out by Excess of Pain, she died about the End of the fourth Month.

UPON opening the Abdomen, the urinary Bladder was extended upwards beyond the Navel, and upon its Outside was much discoloured. Upon laying open its Cavity, it contained more than a Quart of a very putrid feculent Urine. Its internal Coat appeared sphacelated. Upon cutting away the Bladder I found the Uterus schirrous in several Places, particularly at its Fundus, and at the posterior Part of the Neck, which was felt up the Vagina.

THE diseased State of the Uterus no doubt was the original Cause of all this poor Woman's Complaints, and the Schirrosities preventing its due Extension upwards, it was so enlarged in the Pelvis as to occasion a strong Pressure upon the Neck of the Bladder, and thereby prevent its natural Action.

A Suppression of Urine frequently attends Pregnancy, more especially about the third Month; but if due Care be taken to draw off the Water 'till the Uterus has ascended above the Pelvis, these troublesome Symptoms in general entirely disappear. If proper Regard is not paid to this Circumstance, the worst of Consequences may ensue, as is further exemplified in the following Instance.

CASE VIII.

M. D. thirty-five Years of Age, when about four Months gone with Child, was attacked with a total Suppression of Urine. For some Time before she could not make Water freely, but now in the greatest Misery, she applied for Assistance, and her Water was drawn off by the Catheter to the Amount of five Pints. This afforded her considerable Ease, and for some Days, though with no small Difficulty, she voided nearly a natural Quantity of Urine. About the seventh or eighth Day, she had a second Attack, when the Catheter, upon being introduced, met with an uncommon Kind of Resistance just within the Neck of the Bladder, and no more than half a Pint came away. Even from this small Quantity she found Relief, and afterwards urined with greater Freedom, though not without considerable Pain, which reduced her Strength so much as to confine her constantly on the Bed. About the fourteenth or fifteenth Day after the Water was first drawn off, her Strength failed her very fast. She became very feverish, complained of great Soreness in her Belly, and was frequently delirious. She now altered considerably for the worse, and her Urine and Fæces came away involuntarily. For two or three Days she was quite insensible, and then died.

THE Abdomen was opened by Mr. *Crump*, at which I attended. We found the Bladder extended up to the Navel, much inflamed throughout its whole Extent, and in some Parts very firmly adhering to the Peritoneum. Upon laying it open, it was found to contain about a Quart of a
very

very fœtid, thick, and purulent Urine. At its Fundus it was completely sphacelated, and throughout its whole Extent besmeared with a very thick and viscid Mucus. The Resistance, which the Catheter met with, was found to proceed from a Duplication of the Bladder occasioned by the Pressure of the Uterus, and which by that Means formed a double Cavity, so that it is probable the Urine which came away in the later Days, and which was very clear and of a natural Colour, came only from the lower Cavity, and was supplied by the Division of the Bladder being formed above the Insertion of the Ureters: For upon introducing the Catheter through the Meatus Urinarius, we could not for a considerable Time pass it into the upper Part of the Bladder, where the purulent Urine was collected.

CASE IX.

A DISEASED TESTICLE.

E. N. about thirty Years of Age, atrabilarious, of a sedentary Life, and close Application to Study, in *February* 1762, perceived his right Testicle enlarged to the Size of a Goose's Egg. He had about five Days before walked near forty Miles, but was not sensible of any ill Effects from the Journey. The Swelling gradually increased, so that about the fourth Month it measured twelve Inches round. The Integuments were rather indurated, and their Vessels varicose.

BEING called in some Time after, upon the Decease of the Surgeon who attended him, I found the Tumour as just mentioned, and the Spermatic Chord much thickened and indurated

rated. He had taken for some Time, by the Direction of his Physician, the Extract of Hemlock. Fomentations and Cataplasms of the the same Herb were applied to the Part; but these, and other Applications after my Attendance on him, were of no Service.

THE superior Part of the Tumour at Times felt soft, and yielded to Pressure in some Respect like an old Hydrocele, where the Tunica Vaginalis is considerably thickened, and fully distended with Water; but this was always the more remarkable in Proportion to the Number of Stools he had in a Day.

THE only Chance of Relief therefore that seemed to remain was Castration; but from this there was little Probability of Success, as his fallow Countenance, adust dry Habit, frequent Cholics, and hectic Disposition too strongly indicated a constitutional Affection. The little Hopes he could therefore form from the manual Part of Surgery, or from the internal Use of the Hemlock, which had been long continued, determined him in the Resolution of submitting to his Fate. Some Time after appeared an hard and indolent Tumour on the right Side, in the Course of the Rectus Muscle, which gradually enlarged, and from his emaciated State might be readily distinguished to be within the Cavity of the Abdomen.

DEPRIVED of due Nourishment by an obstinate and almost continual Vomiting, and tortured by a most painful Irritation on the Rectum, which no emollient Clyster could assuage, he became emaciated to the highest Degree, 'till at last quite worn out with Pain, and want of due Nourishment, he died about the fourteenth Month after the first Appearance of his Complaint.

UPON

UPON examining the Tumour in Scroto after his Decease, it proved to be entirely made up of the enlarged Testicle, without the least Drop of a Fluid, but at the very Centre, which even there did not amount to more than a large Spoonful; the Tunica Vaginalis adhering to the Albuginea through its whole Extent. The Body of the Testicle was degenerated into such a putrid rotten Mass, that, before it was laid bare, it yielded to the Touch like a Bladder three fourths filled with Water, which Alteration it very remarkably suffered in the last Week of his Illness. When divided from the Spermatic Chord it weighed one Pound fourteen Ounces. The Epididimis was considerably enlarged, and dissolved into the last State of Rottenness, and was the Cause of that deceitful Feel, which induced us to suspect a Fluid there. The left Testicle was retracted from the Scrotum up into the Groin, and was perfectly sound.

THE Tumour in the Abdomen took up the whole right Hypogastrium, and when carefully separated from the Intestines, which surrounded it, and in many Places were closely attached to it, proved to be the Pancreas, so enlarged as to weigh three Pounds. It was exactly in a similar State with the Testicle. As it increased in Size, it had connected itself to the Stomach, which in its Descent it had dragged downwards, and from whence probably arose those continual Vomitings, which in the latter Part of his Life were so very troublesome to him.

THE Liver and Spleen did not appear at all diseased, but the Intestines were in general much inflamed. The Glands of the Mesentery were considerably enlarged and schirrous.

CASE X.

*An INDURATION of the CELLULAR MEMBRANE in the
SCROTUM.*

J. P. aged fifty-five, consulted me upon an Enlargement of his Scrotum, which, from working and lying in a cold damp Room, had gradually encreased in the Space of two Months to the Size of a Child's Head. In the former Part of his Life he had lived very irregularly, and at Times had schrophulous Enlargements of the Glands, as well in his Neck as in other Parts of the Body, which upon coming to Suppuration had in different Times got well.

UPON examining the Tumour at the anterior Part, it felt hard and firm, and resisted the Touch very differently from every other Swelling I had before met with. In the posterior Part it was much softer, and the more so as it approached the Perineum. Though it yielded to Pressure it recovered itself immediately, preserved its natural Heat and Colour, and was only troublesome to him by its Size. Within a little Time after I first saw him, he was attacked with a Fever, which in a few Days put an End to his Life.

I got Leave to examine the Tumour, and found it to be an Induration of the Cellular Membrane, without the least Collection of Water in any of its Cells, or Appearance of any other Disease. The Testicles were perfectly found, and the Tunica Vaginalis in a very natural moist State.

C A S E XI.

An ULCERATION of the TIBIA from an internal Cause.

A Woman, about thirty Years of Age, had for some Time been troubled with a Pain in her Leg, upon and about the middle Part of the Tibia. When she applied for Relief, the Part affected appeared to be enlarged, and felt as tho' occasioned by a thickened Periosteum. A Mercurial Plaister was therefore applied, but in a few Hours afterwards she was seized with a very troublesome Pain in her Stomach. The Plaister was then pulled off, and she soon grew easy. For Experiment Sake it was again applied, and the Pain returned as troublesome as before. Other Applications were then made use of, but to no Purpose, and an Incision was made down to the Bone, the whole Length of the Tumour. The Lips of the Wound separating pretty widely as the Digestion came on, I observed the Surface of the Bone to look very red, and upon touching it, it was soft as Flesh. In a Day or two it began to ulcerate, and in a little Time was so destroyed by Suppuration, that a considerable Cavity was formed in it, which daily grew deeper and wider. The poor Woman all this while suffered the most excruciating Pain; which nothing would conquer, grew very hectic, and her Life appeared in the most imminent Danger. Amputation was then proposed to her, which she absolutely refused, chusing rather to yield to the Consequences of keeping her Leg on. From this Time she daily grew worse, and about the End of the third Month expired.

C A S E

CASE XII.

On a SUPPURATION of the LIVER succeeding a Wound in the SCALP.

THE following Case was communicated to me by Mr. *Russell*, an eminent Surgeon, of *Worcester*, as it seemed to render the Opinion, I had before advanced, doubtful, that Suppurations in the Viscera after Wounds of the Head proceeded from a local Affection.

A. P. twenty-six Years of Age, in 1744, was seized with a violent Pain in her Head, attended with Epileptic Fits, which after some Continuance produced a Gutta Serena. After suffering these Complaints for a Year and a Half, she was admitted into *St. George's Hospital*. The Fits had for some Time left her, and she was now only capable of distinguishing Night from Day. Triangular Incisions were made behind each Ear, and the Additamentum Squamosum laid bare about the Breadth of a Six-pence by erasing the Pericranium, at the same Time Blood was taken from the Temporal Artery to the Amount of eight Ounces, and Vomits and Calomel Purges were ordered twice every Week.

ON the tenth Day she had violent Rigors, on the twelfth Fever and Pain in her Side, and on the seventeenth died.

ON opening the Skull a little thick Matter was found on the Dura Mater immediately under the Part where the Incision was made *, that Membrane seemed also thickened. A little above was a small Spot of Pus upon the Cerebrum, underneath which was a Discoloration. The lateral Ven-

* See Note to Page 37.

tricles were distended with Serum to the Quantity of Half a Pint in each. In the fore Part of one of them was a dark hard coloured Fungus. The Optic Nerves had lost their usual Plumpness, and were very small and lax. All the Viscera in the Thorax and Abdomen were found, except the Liver, in which there was a very large Abscess.

BEFORE we draw our Conclusions from such Cases as the present, we must determine whether the Abscess is produced by the Injury committed to the Scalp, or to the Brain. Practitioners daily observe, that Wounds of the Scalp, even tho' considerable, if the Cranium or its Contents have not been at the same Time injured, are never attended with any Consequences, but what may be observed in similar Accidents of other fleshy Parts. The Wound therefore heals up in a proportional Time to the Degree of Laceration. Indeed to suppose that the Scalp is any-ways instrumental in producing such Collections of Matter in the Viscera, we must allow of a Metastasis, which very many Cases in this Point strongly contradict. *Bertrandi, Andouille, and Pouteau*, tell us, that Abscesses have been found in the Livers of Patients, who died of an Apoplexy or Coma, when there neither was nor had been any Suppuration in the Head: And many Instances might be brought to prove that they have been met with at a very considerable Time after the Wounds of the Head have been entirely healed. These are strong Circumstances to contradict the Opinion of a Metastasis and to induce us to look for some other Cause of such Collections.

I have before offered a Query, whether the Suppuration in the Liver is not produced thro' an Irritation of its Vessels by means of the Nerves from the diseased State of the Brain.

Further

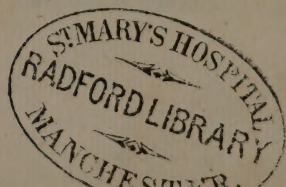
Further Reflection confirms this more strongly; and if the Case just now related may be deemed relative to the Subject before considered, we can only suppose that the Liver was diseased from that disordered State of the Brain, of which there were so many Symptoms when the Patient was alive, and which was so evident upon examining it after her Decease.

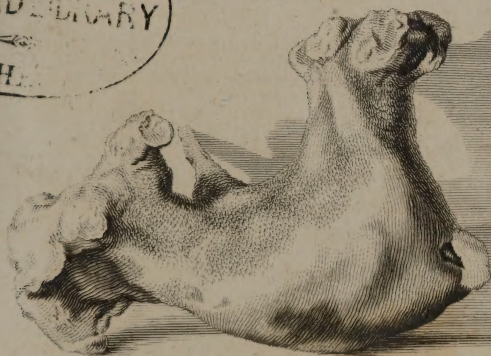
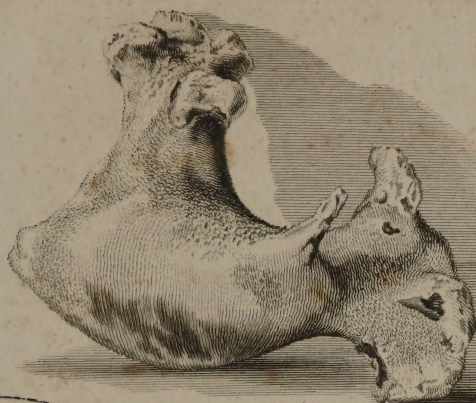
PARTICULAR Parts are we know affected by Wounds of their Nerves; Secretions are increased and diminished, though in an unaccountable Manner, by the Impression of particular Objects on our Senses. With equal Propriety may we therefore reason, and Facts strongly support the Opinion, that that Influence of the Nerves, which is necessary for the regular Performance of the Functions of particular Parts, by being depraved may be productive of the most terrible Disorders. Vomiting * is a general Attendant on an injured Brain, and is certainly occasioned by a stimulating Power which excites the Stomach to contract and expel its Contents. Thus too a diseased Affection communicated from the Brain to the Nerves of the Liver, may so injure the Functions of the Plexus Hepaticus, as, by disturbing the Circulation thro' that Viscus, to produce Obstructions, which unresolved may give Rise to Inflammation and its Consequences. And since the Soundness of this Viscus, and the Regularity of the Circulation thro' it is so essential to Health, what Wonder, if such an Affection should in a remarkable Manner occasion other Complaints, which have proved so speedily fatal †.

* See *Van Swieten, in Boerh. Aph. 267. Vomitus Bilis, &c.*

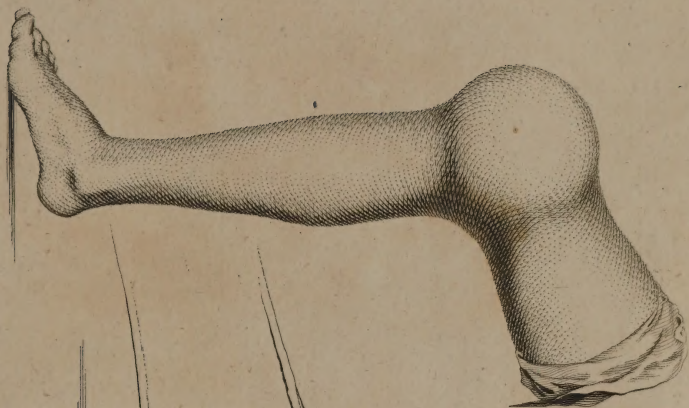
† *Pouteau's Case.*

F I N I S.









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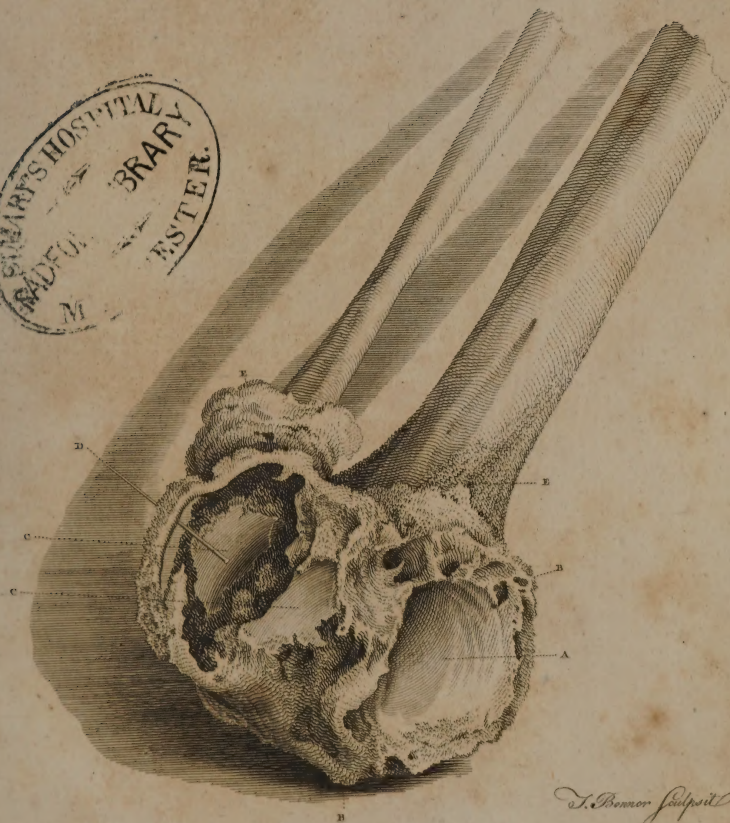
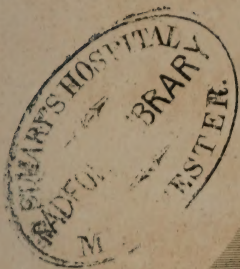
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E. Bannier del. et sculp.



J. B. De Meunier Sculp.



J. Bonner sculpit

